DOCUMENT RESUME

ED 118 675 UD 015 701

TITLE	Nutrition and Health with an Evaluation on Nutritional Surveillance in the United States.
INSTITUTION	Congress of the U.S., Washington, D. C. Senate Select Committee on Nutrition and Human Needs.
PUB DATE	Dec 75
NOTE	247p.
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 ($2.45)
EDRS PRICE	MF-$0.83 HC-$12.71 Plus Postage
DESCRIPTORS	Eating Habits; Foods Instruction; Government Role; *Health Conditions; *Health Education; Health Needs; Health Occupations Education; Health Programs; Health Services; *National Programs; *Nutrition; Nutrition Instruction; Policy Formation; Program Evaluation; *Public Health; Public Policy; Special Health Problems

ABSTRACT

Focusing on America's self-knowledge about its nutritional health, this report deals with the availability of nutrition evaluation and counseling to individuals and the adequacy of the national nutrition monitoring system. Bureaucratic and political problems of applying nutritional health considerations to food policy are also examined. Nutrition education outside the medical setting, the status of nutrition research, and the nutritional quality and safety of food are topics left to further inquiry. Among the topics discussed in the introduction are the diseases of overabundance, undernutrition, nutrition knowledge, food production and nutrition policy, and control of nutrition policy. Chapter 1 shows that the medical profession has been extremely slow to take nutrition seriously. Chapter 2 discusses the failure to establish an effective nutrition monitoring system in the United States and the consequences of this failure. Chapter 3 describes the random efforts of HEW to coordinate nutritional health policy. Recommendations are made for areas covered in each chapter. (Author/AM)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED118675

94th Congress
1st Session

COMMITTEE PRINT

NUTRITION AND HEALTH

WITH AN

EVALUATION OF NUTRITIONAL SURVEILLANCE

IN THE UNITED STATES

PREPARED BY THE STAFF OF THE

SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS

UNITED STATES SENATE

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRO
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRE
SENT OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY

DECEMBER 1975

Printed for the use of the Select Committee on Nutrition and Human Needs

---

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1975

60-843

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $2.45

UD 015 701

SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS

GEORGE McGOVERN, South Dakota, *Chairman*

HERMAN E. TALMADGE, Georgia	CHARLES H. PERCY, Illinois
PHILIP A. HART, Michigan	ROBERT DOLE, Kansas
WALTER F. MONDALE, Minnesota	HENRY BELLMON, Oklahoma
EDWARD M. KENNEDY, Massachusetts	RICHARD S. SCHWEIKER, Pennsylvania
GAYLORD NELSON, Wisconsin	ROBERT TAFT, JR., Ohio
ALAN CRANSTON, California	MARK O. HATFIELD, Oregon
HUBERT H. HUMPHREY, Minnesota	

ROBERT M. SHRUM, *Staff Director*
ALAN STONE, *General Counsel*

(II)

FOREWORD

When we talk about health, nutrition and agricultural policy in the United States we do so in a global context in which food, like oil, is being rationed by price, not human needs. The rich eat well, the poor not so well or not at all.

In the United States, the rise in food prices of more than 40 percent in 3 years has pushed millions further from an adequate diet. The food stamp program and other food assistance programs have helped ease the strain on the poor, but the extent to which the diets of vulnerable groups has suffered is not known.

Americans who can afford an adequate diet may not be getting one either, however, for rich and poor alike are tempted daily by a food system striving to expand demand by tempting the palate with foods overloaded with fat, sugar and salt, low in nutritive value, high in pleasure value. Our eating habits and the composition of our food have changed radically, but we do not have any detailed measure of what is happening to the Nation's nutritional health.

We do know that millions of Americans are literally sick with diet-related illnesses. Five of the 10 leading causes of death in the United States have been connected to diet.

And we do know that millions of Americans are failing to realize their full potential because they do not have a proper diet. A study done in 1969 estimated that billions of dollars in economic benefits (to say nothing of spiritual benefits), are lost nationally each year because of improper nutrition.

In short, we find the United States, amid a world with a cruel imbalance in food distribution, pursuing a business as usual policy which is not only wasting food and the non-renewable resources needed to produce it, but is contributing to ill-health and the short fall of human potential. The perpetuation of this policy is founded at least partly on the prevalence of public ignorance about nutrition.

This report shows that the American public is eating blind. Medical schools have underemphasized nutrition with the result that the typical physical examination does not involve thorough nutritional evaluation or counseling. The starkest evidence of medical neglect of nutrition is the finding of malnutrition in hospitals. Doctors traditionally have relied for nutrition examination and counseling on dietitians and nutritionists who simply are not large enough in number to handle the load.

The result is that the American people know more about what their cars need than what their own bodies need. The result is an American public tempted by unhealthy food on one hand and weight reducing gimmicks on the other. The result is a physically unhealthy Nation.

The needs for better education of doctors in the area of nutrition and for expansion of nutrition manpower were covered amply in the rec-

ommendations of the 1969 White House Conference on Food, Nutrition and Health. Experts inside and outside the Government have known about these problems for years. In 1971, a group of concerned officials within HEW proposed a program for improving the Nation's nutrition, including expansion of nutrition manpower and greater efforts in nutrition education. These proposals have been neglected.

The inaction of the Executive Branch has helped to prolong public ignorance of the impact of diet on health. The reason for this inaction cannot be stated with certainty. It may be related to traditional concepts of the marketplace, in which the public is supposed to base decisions on the respective values of product price and product need or desirability. This is not, however, a free marketplace in the sense which appeals to most of us Americans. Rather it is an anarchic marketplace, where consumers may be uninformed of other variables more important than price or taste or color, variables as fundamental as health and life itself.

Dr. Arnold Schaefer, director of the Ten-State Nutrition Survey, testified in detail about the location, incidence, and effects of malnutrition in the United States. That testimony, presented to this Select Committee, was invaluable evidence for those in Congress fighting to expand food assistance programs. But the Administration apparently saw greater knowledge as a threat rather than a help. The problem of hunger could not be ignored so easily if it was documented so completely. The Ten-State Survey was almost immediately reorganized to insure that its final report would discuss nutrition only in general terms, concealing groups at high risk in broader categories. Dr. Schaefer resigned.

The expedient of non-specificity, of masking areas of malnutrition in generalization, has been carried forward into the successor to the Ten-State Survey, the Health and Nutrition Survey (HANES). HANES has been crippled further by severe under-staffing. Consequently, data collection alone takes 2½ to 3 years and the drafting of reports and statistical analyses, which is assigned to a tiny staff, requires another year or more.

The Administration's practice of permitting and even perpetuating nutritional ignorance apparently extends to the Department of Agriculture's Household Food Consumption Survey. Formerly scheduled to start in January 1976, the survey was delayed at least a year by the Office of Management and Budget supposedly for technical reasons. But one official reports that, in fact, the Administration did not want to be embarrassed in an election year by preliminary findings which might very well show a decline in the nutritional quality of the American diet.

The Household Food Consumption Survey is important not only as a general indicator of the content of the American diet, but as the data base for food stamp allotments. Therefore, the delay of a new survey permits continued use of data which may keep allotments lower than they should be.

In addition, the Household Food Consumption Survey as it is presently structured, does not provide the best basis for establishing food assistance allotments because it measures only nutrient intake, not the actual nutritional health of the respondents. Experts insist that proper analysis of nutritional health must include physical examination and

biochemical testing as well as a measure of nutrient intake. The Household Food Consumption Survey as currently planned has no nutritional health component, and therefore, can study what is eaten but not the effects of these consumption patterns.

There is no system for measuring in a timely, effective manner the nutritional health of Americans. As resources become more dear, it is mandatory that decisions in agricultural production and food processing and retailing be guided predominantly by their impact on health. An effective, compassionate, healthful food policy must be informed by a continuous, detailed monitoring of the Nation's nutritional health.

This fundamental premise has been understood for years. Improved nutritional surveillance was one major recommendation of the White House Conference. HEW officials in 1971 urged and outlined a detailed plan for nutritional monitoring. Yet today HEW has only a shadow of a monitoring system. That piece of a system may, in fact, subtract from the nutritional health of the Nation to the degree that it stands in for something that it is not.

The weak, ill-tended nature of the HEW nutrition monitoring effort characterizes the Department's traditional approach to nutrition policy. This report documents a history of inadequate nutrition planning and coordination, characterized for at least 8 years by continuous neglect and a reluctance to face the nutritional health implications of agricultural or economic policy.

In 1945, the Bureau of the Budget recommended a continued coordination of nutrition policy among Federal and State agencies in the manner which had been developed during World War II. The White House Conference made the same recommendation in 1969, as did HEW officials in 1971. An HEW coordinating committee was formed in 1972, but it was disbanded in 1975.

We confront, in short, a situation in which concerned nutrition experts and officials have made repeated attempts to secure for nutritional health a proper place in food policymaking and to improve nutrition services, only to be met by the systematic indifference of the Executive Branch.

Nutrition programs can be expensive, and changed eating habits can require changes in the food industry. But we have reached the point where nutrition, or the lack or the excess or the quality of it, may be the Nation's number one public health problem. The threat is not beriberi, pellagra, or scurvy. Rather we face the more subtle, but also more deadly, reality of millions of Americans loading their stomachs with food which is likely to make them obese, to give them high blood pressure, to induce heart disease, diabetes, and cancer—in short, to kill them over the long term. We face the tragedy of anemic children failing in school and repeating that pattern of failure throughout their shortened lives.

The remedies will not all be obvious, or easy; they demand the rethinking of established economic patterns and assumptions. For example, as a representative of a State in which there are cattle-growers, I know very well that many livelihoods are tied to the cattle industry. I also recognize that concerns over grain feeding cannot be dismissed out of hand, that such issues must be faced squarely and that, if the facts require change, then we must change in a manner which protects the interests of food consumers and producers alike.

Our hope as a Nation rests now, as it always has, on the active, informed involvement of our citizenry, as much in the area of food policy as any other. The public must have access, and it does have a right, to proper nutrition evaluation and counseling. The Nation needs continuous monitoring of its nutritional health. And all Government nutrition activities must be given coordination and direction.

The strength of the Nation is based on the health of its people. We must realize that the simple act of choosing our diet, day after day, determines our personal health and national health and may well affect the health of other nations. Americans eat on as they have at their peril.

GEORGE MCGOVERN,
Chairman.

NOTE

The Senate Select Committee on Nutrition and Human Needs held hearings in June 1974, to measure the progress that had been made in achieving the goals set at the 1969 White House Conference on Food, Nutrition and Health and to focus attention on the need for a comprehensive national nutrition policy.

This report is the fifth in the series of staff studies expanding on recommendations and testimony offered at the hearings and intended to set specific objectives for United States food and nutrition policy.

This report will concern itself primarily with America's self-knowledge about its nutritional health; more specifically, the availability of nutrition evaluation and counseling to individuals and the adequacy of our national nutrition monitoring system. The bureaucratic and political problems of applying nutrition and health considerations to food policy are also examined. Nutrition education outside the medical setting, the status of nutrition research and the nutritional quality and safety of food are topics left to further inquiry.

The other reports in the staff series are: *Nutrition and the International Situation*—September 1974; *Nutrition and Food Availability* (discussing food production and retailing)—January 1975; *Nutrition and Special Groups, Part I—Food Stamps*—March 1975; *Nutrition and Government—Towards a National Nutrition Policy*—May 1975.

CONTENTS

	Page
Foreword	iii
Note	vii

REPORT ON NUTRITION AND HEALTH

Introduction	3
Eating in the dark	3
The diseases of over-abundance	4
Under-nutrition	8
Other factors affecting nutritional health status	17
Nutrition knowledge	17
Monitoring national nutritional health	19
Filling the vacuum	19
Food production and nutrition policy	20
Health, the governing factor	21
Control of nutrition policy	21
Chapter I.—Access to individual nutrition assessment	23
Examination failure	25
The nutrition counseling system	29
Hospitals	29
Public health clinics	31
Nutrition referral services	32
The third parties	32
Discussion	33
Recommendations	34
Chapter II.—National nutrition assessment	37
Surveys being planned	41
Averaging	41
The CDC system	42
Timelag	43
The food consumption survey	45
Discussion	46
A plan for nutritional monitoring	48
Recommendations	49
Chapter III.—Control of nutrition policy	51
Roadblocks to change	52
HEW recommendations	54
Discussion	59
Recommendations	60
Bibliography	61

APPENDIX

A. Benefits from human nutrition research	67
B. Economic benefits from the elimination of hunger in America	71
C. An "alternative diet" for the prevention of atherosclerotic heart disease	87
D. What should be the Department's role in nutrition and diet pertaining to health?	91
E. New control of farm policy described	129
F. Levels of nutritional assessment	135
G. Hospital malnutrition	141
H. Outpatient nutrition counseling	157
I. Letter from The Library of Congress	159
J. Nutrition programs in State health agencies	161

	Page
K. Preliminary plans for the second Health and Nutrition Examination Survey	165
L. Center for disease control, nutrition program	183
M. Memorandum from HEW concerning CDC nutrition activities fiscal year 1974	185
N. Requirements for data from the 1977 nationwide food consumption surveys for specified problem areas and users	187
O. Background paper on the recommendations of conferences and groups related to national nutrition policy, 1917–74, for national nutrition policy study hearings	190
P. Note from HEW concerning New York Times article on nutritional illiteracy	219
Q. Information memorandum from HEW on New York Times article	221
R. HEW note to Dr. Laurence E. Lynn, Jr	223
S. Action memorandum from HEW on coordination of nutrition activities	225
T. Memorandum from HEW on coordination of departmental nutrition activities	229
U. Nutrition coordinating committee charter	231
V. Annual progress report of nutrition coordinating committee	233
W. A statement of nutrition policy for the Department of Health, Education, and Welfare	237
X. Administrative confidential draft	243
Y. HEW statement on the health aspects of nutrition	253
Z. Memorandum concerning DHEW nutrition coordinating committee	257

REPORT ON NUTRITION AND HEALTH

With an
Evaluation of Nutritional Surveillance
in the United States

INTRODUCTION

EATING IN THE DARK

> The problem of disease prevention itself has changed radically since 1900 when pneumonia, influenza and tuberculosis were the leading killers. Today, heart disease, cancer and stroke . . . claim our attention . . . there is much greater recognition today that the kinds and amounts of food and liquor we consume and the style of living of our sedentary society are major contributing factors to the development of chronic illness and to change these patterns of behavior requires the active involvement of the individual.—The Department of Health, Education, and Welfare's *Forward Plan for Health, fiscal year 1977–81.*

One in three men in the United States can be expected to die of heart disease or stroke before age 60 and one in six women. It is estimated that 25 million Americans suffer from high blood pressure and that about 5 million are afflicted by diabetes mellitus. These diseases have been directly related to over-consumption of certain foods.[1]

At the same time, millions of Americans are not receiving the nutrients they need. The Department of Health, Education, and Welfare's Health and Nutrition Evaluation Survey (HANES) reported in 1974, for example, that significant numbers of children are deficient in iron. The highest incidence of this learning impeding deficiency was found among black children, ages 1 to 5, above the poverty line, where 22 percent were affected. Protein deficiency was found to increase with age, hitting hardest among whites age 45 to 59, where 15 percent of the sample was found affected.

The consequences of malnutrition both through the over- and under-consumption of nutrients is expensive not only in terms of human suffering and wasted potential, the monetary cost is staggering.

Dr. George M. Briggs, professor of nutrition at the University of California at Berkeley told the Select Committee at hearings in December 1972, that the annual health bill to the country from hunger and improper eating habits might be as much as $30 billion, or at that time, about one third of the Nation's health costs. HEW reported the health care costs to be $104 billion in 1974. Dr. Briggs' estimate was based on a report issued in 1971 by the Department of Agriculture, *Benefits of Human Nutrition Research* (Appendix A). Dr. John W. Farquhar, of the Stanford University Medical Center, told the National Nutrition Policy hearings that the elimination of obesity in the United States might cut in half the $24 billion being spent on treatment of premature cardiovascular disease.

In a paper prepared for the Select Committee in 1969, *Economic*

[1] Statistics from reports and testimony presented to the Select Committee's National Nutrition Policy hearings, June 1974, appearing in National Nutrition Policy Study, 1974, Part 6, June 21, 1974, Heart disease, p. 2633; high blood pressure, p. 2529; diabetes, p. 2523.

Benefits from the Elimination of Hunger in America, Barry M. Popkin, of the Institute of Research on Poverty at the University of Wisconsin, made the following estimates of economic benefits that might flow from eliminating malnutrition among the poor (Appendix B).

Education—Improved nutrition improves learning, prevents an interruption of cognitive development and increases the ability to concentrate and work ($6.4–19.2 billion).

Physical Performance—Improved nutrition increases the capacity for prolonged physical work, raises the productivity of workers and increases the motivation to work ($6.4–25.8 billion).

Morbidity—Improved nutrition results in higher resistance to disease and lowers the severity of disease ($201–502 million).

Mortality—Improved nutrition decreases fetal, infant, child and certain types of maternal mortality ($68–157 million).

Intergenerational Effects—Improved nutrition makes healthy mothers who have healthy children. Also, better educated parents lead to better educated children ($1.3–4.5 billion).

It is clear that poor nutrition is a major public health problem in the United States. Its cause is rooted in our habits and our economic system, and it is a problem greatly aggravated by ignorance.

The Diseases of Over-Abundance

Testifying at the National Nutrition Policy hearings, Dr. William E. Connor, co-chairman of the Select Committee's panel on nutrition and health, reported:

> The vast majority of Americans suffer from over-abundance of food. The changed ecology of our land . . . has led to a whole new spectrum of diseases in which nutritional factors either play the prime etiological role or else are highly contributory to the development of the given disease state, that is coronary heart disease, obesity, and so on.

He presented the following list of primary or contributing dietary factors in some of the most widespread diseases.

1. *Coronary heart disease*—An excessive amount of cholesterol, saturated fat and calories in the diet.
2. *High blood pressure*—Dietary salt and excessive calories contributing to obesity.
3. *Diabetes mellitus*—Excessive calories with associated obesity (also high dietary cholesterol and saturated fat intakes may predispose to the vascular complications of diabetes).
4. *Obesity*—Excessive calories and lack of physical activity with the result that caloric intake exceeds caloric expenditure.
5. *Dental caries*—High intake of sugar.
6. *Liver disease*—Excessive usage of alcohol.

Table 1 shows the 10 leading causes of death in the United States, with the diet-related illnesses noted.

TABLE 1.—DEATH RATES FOR THE 10 LEADING CAUSES OF DEATH, UNITED STATES, 1972

[Based on 10 percent sample of deaths; rates per 100,000 population]

Rank and cause of death	Death rate	Percent of total deaths
All causes	942.2	100.0
1. Diseases of heart [1]	361.3	38.3
2. Malignant neoplasms, including neoplasms of lymphatic and hematopoitic tissues	166.6	17.7
3. Cerebrovascular diseases [1]	100.9	10.7
4. Accidents	54.6	5.8
5. Influenza and pneumonia	29.4	3.1
6. Diabetes mellitus [1]	18.8	2.0
7. Certain causes of mortality in early infancy	16.4	1.7
8. Arteriosclerosis [1]	15.8	1.7
9. Cirrhosis of liver [1]	15.7	1.7
10. Bronchitis, emphysema and asthma	13.8	1.5
All other causes	148.9	15.8

[1] Nutrition related causes.

These illnesses, even though they are related to the over-consumption of certain foods, are not peculiar to any one income level. Figure 1, from the HEW Health and Nutrition Evaluation Survey (HANES), shows that obesity, one of the nation's major health problems, is suffered almost equally at almost all income levels.

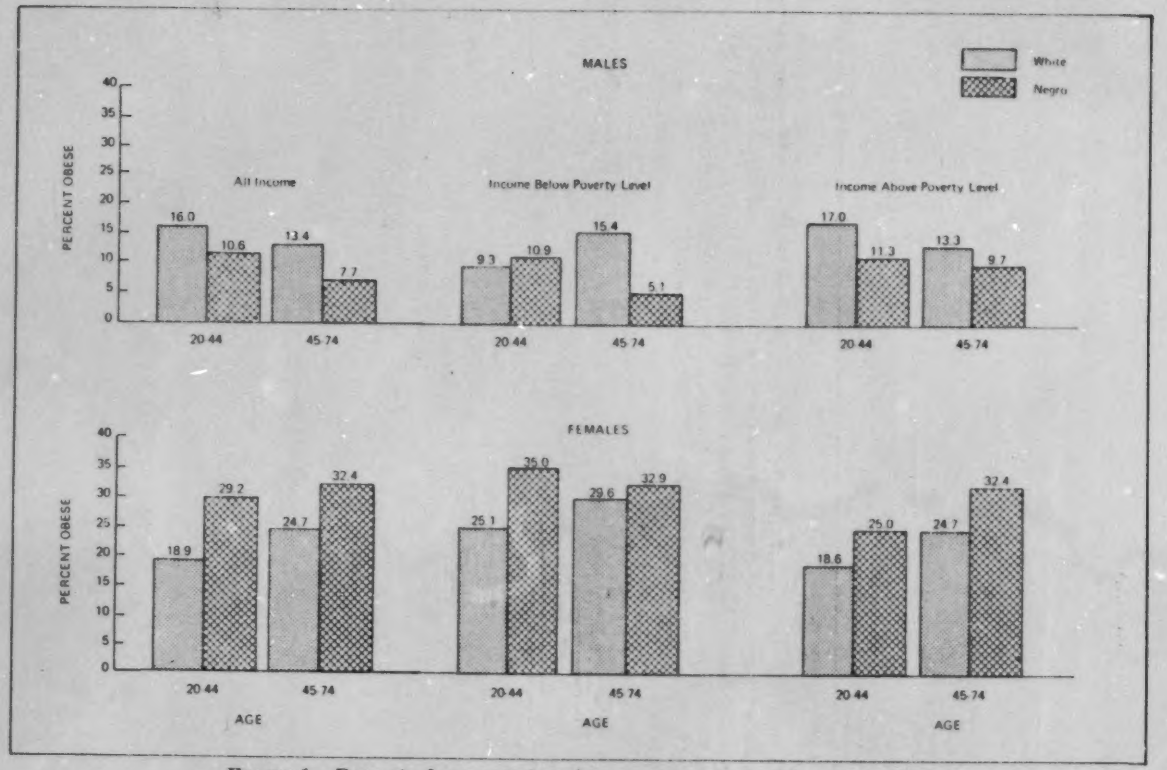


FIGURE 1.—Percent of persons obese by age, sex, race, and income levels: United States, 1971–72 (HANES Preliminary)

Experience in other nations as well as our own indicates that a general reduction of certain foods in the diet is likely to lead to improved health. Figure 2 shows, for example, that there is a greater incidence of death from heart disease in the more affluent nations where the intake of cholesterol is higher.

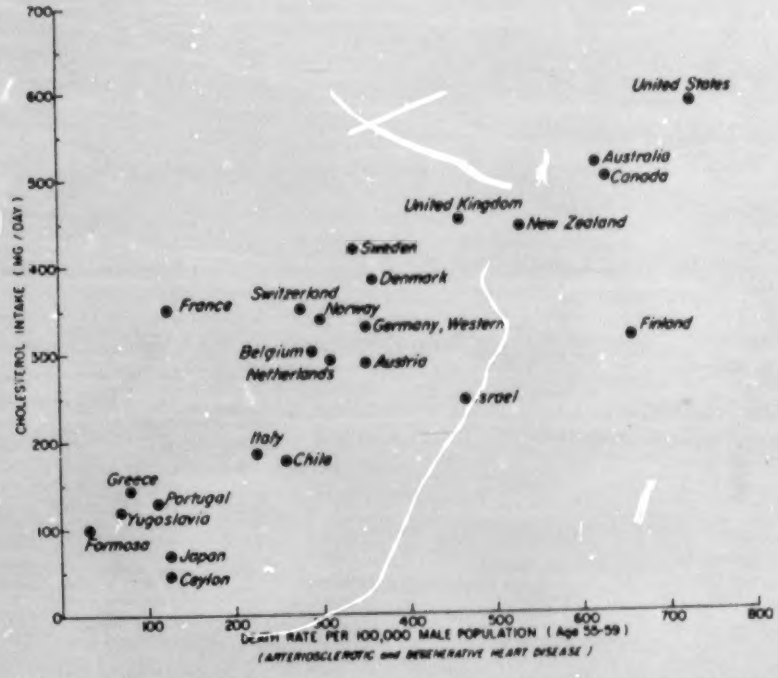


FIGURE 2.—The death rates from coronary heart disease (arteriosclerotic and degenerative heart disease, category B26) compared with mean daily intake of cholesterol in diet for 24 countries. The death rate is expressed in deaths per 100,000 population in men aged 55–59, 1955–1956. The mean cholesterol intake in milligrams per day per person was computed from food balance sheets for years 1952 through 1956. The correlation coefficient (r) was 0.83 and was highly significant ($p < 0.01$). (4).

European experience during World Wars I and II offers further evidence that reduction in consumption can be healthful. A Library of Congress report, *Hunger and Malnutrition in the United States: How Much?*, pubished in May 1975 says:

The burden of serious American dietary deficiency falls on the poor, disadvantaged children, the incapacitated elderly, Indians on isolated reservations, and upon those in need who have no knowledge of the various food assistance programs or who live in jurisdictions which are unsympathetic to the problem. A more fortunate situation could be one in which the entire population was tightening its nutritional belt in total calories and in selection of foods.

The basis for this statement lies in certain results observed during generally diminished or inadequate food supplies associated with war, including seiges

60-843—75——2

and blockades. Along these lines Gert H. Brieger has noted that there was a reduction of the incidence of heart disease during World War I. There was also a decrease in morbidity and mortality from diabetes in Germany and Austria . . . also during the severe shortage of food at the World War II seige of Leningrad, cardiovascular diseases declined. A similar drop in this class of diseases also occurred in Sweden and Norway. (D. Mark) Hegsted makes a similar observation concerning the British during World War II:

"We should also remind ourselves that a food crisis does not necessarily mean a deterioration in the nutrition of the population. One of the great nutrition experiments of all time—that conducted by the British during World War II—demonstrated that in the face of an extremely limited food supply and considerable opposition, the nutritional status of the population actually improved . . ."

Diet and Exercise, a report issued by the Swedish government in 1972, says:

> We currently obtain nearly 60 percent of our energy requirements from fat and sugar as compared with less than 30 percent at the turn of the century. The higher the fat—and/or sugar content of a diet or a foodstuff, the lower the content of important nutrients such as proteins, minerals and water-soluble vitamins. Today's diet thus contains less of many essential nutrients per unit of energy. Moreover the trend in modern western societies is toward less and less physical activity.

The trend in nutritional content of America's food is similar. The national food consumption survey conducted in 1965 by the Department of Agriculture found that the number of Americans receiving a nutritionally adequate diet had declined from 60 to 50 percent in 10 years. As will be noted later in this report, some fear that the next consumption survey will show the decline continuing.

The Swedish report gave the following advice "as regards average diets in Sweden":

> —The fat content should be reduced . . .
> —The consumption of sugar and sugar-rich products should be reduced by at least a quarter.
> —Saturated fat should as far as possible be replaced by polyunsaturated fats.
> —The consumption of vegetables, fruit, potatoes, dairy products with a low fat content, fish, lean meat, poultry, bread and other cereal products should be proportionately increased in accordance with proposals from the National Institute of Public Health.

The diet is very similar to the "alternative" diet for reducing fat and cholesterol consumption recommended by the Select Committee's panel (Appendix C).

Under-Nutrition

The under-consumption of nutrients, the other half of the nation's nutrition problem, is widespread, and it affects many of those also afflicted by diseases just mentioned. Dietary deficiencies may affect stamina, outcome of pregnancy, learning ability, growth and susceptibility to illness.

The 1965 Household Food Consumption Survey, conducted by the Department of Agriculture, found insufficient dietary intake of vitamins A and C, B_6, thiamine, riboflavin, iron, and calcium among significant numbers of its sample population. The Ten-State Nutrition Survey, directed by HEW and gathering data from 1969 to 1970, also found substantial nutrient deficiencies, as did the most recent nutrition survey, HANES. The preliminary HANES report, based on data gathered between 1971 and 1972, found great deficiencies in nutrient intake, especially among persons below the poverty level (Table 2).

TABLE 2.—COMPARISON OF PERCENT OF PERSONS WITH NUTRIENT VALUES LESS THAN THE STANDARDS AND MEAN NUTRIENT INTAKES AS A PERCENT OF STANDARD BY RACE, AGE, AND SEX FOR INCOME LEVELS: UNITED STATES, 1971-72 (HANES PRELIMINARY)

Age, sex, and nutrient	White		Negro	
	Percent of persons with intakes less than standard	Mean intake as percent of standard	Percent of persons with intakes less than standard	Mean intake as percent of standard
INCOME BELOW POVERTY LEVEL [1]				
1 to 5 years, both sexes:				
Calcium	14.42	197	35.26	149
Iron	94.46	67	93.01	60
Vitamin A	51.51	160	46.07	187
Vitamin C	58.23	138	48.54	161
18 to 44 years, female:				
Calcium	56.39	110	74.50	80
Iron	94.24	57	94.66	49
Vitamin A	73.54	82	64.42	149
Vitamin C	72.26	108	59.37	132
60 years and over, both sexes:				
Calcium	40.43	121	44.67	108
Iron	62.66	95	67.31	93
Vitamin A	61.45	108	62.40	163
Vitamin C	59.16	119	54.65	141
INCOME ABOVE POVERTY LEVEL [1]				
1 to 5 years, both sexes:				
Calcium	12.14	210	24.96	168
Iron	94.88	68	95.29	66
Vitamin A	36.91	157	51.01	199
Vitamin C	42.82	189	52.91	160
18 to 44 years, female:				
Calcium	55.59	110	71.69	77
Iron	92.13	59	94.70	55
Vitamin A	64.90	114	67.36	116
Vitamin C	49.04	150	56.81	127
60 years and over, both sexes:				
Calcium	34.41	142	47.71	117
Iron	46.97	114	64.57	109
Vitamin A	55.56	196	52.24	226
Vitamin C	38.96	174	43.78	165

[1] Excludes oersons with unknown income.

The following figures show HANES' biochemical measurements of nutritional condition, perhaps a more accurate measure of nutritional status than that offered by data in nutrient intake.

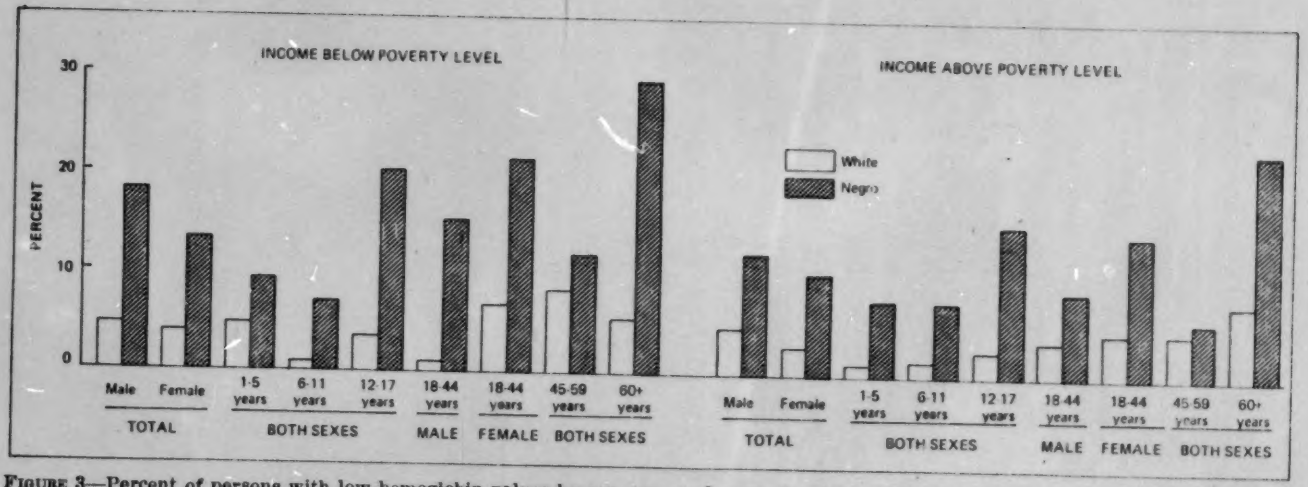


FIGURE 3—Percent of persons with low hemoglobin values by age, sex, and race for income levels, United States, 1971–72 (HANES Preliminary)

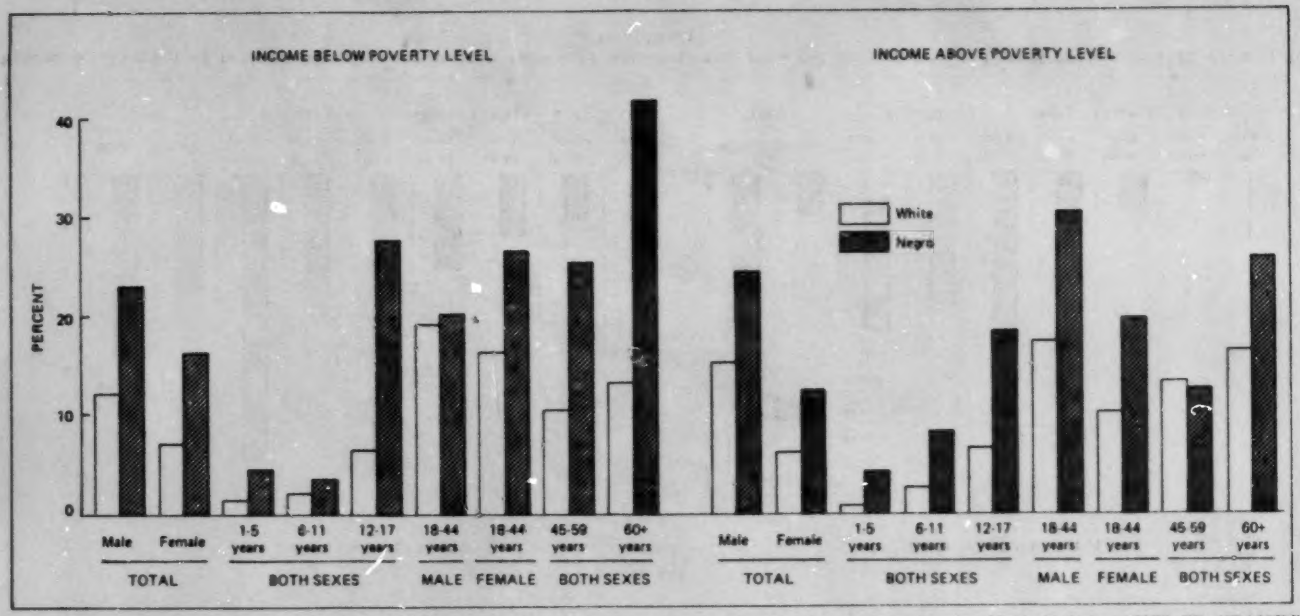


FIGURE 4.—Percent of persons with low hematocrit values by age, sex, and race for income levels, United States 1971–72 (HANES Preliminary)

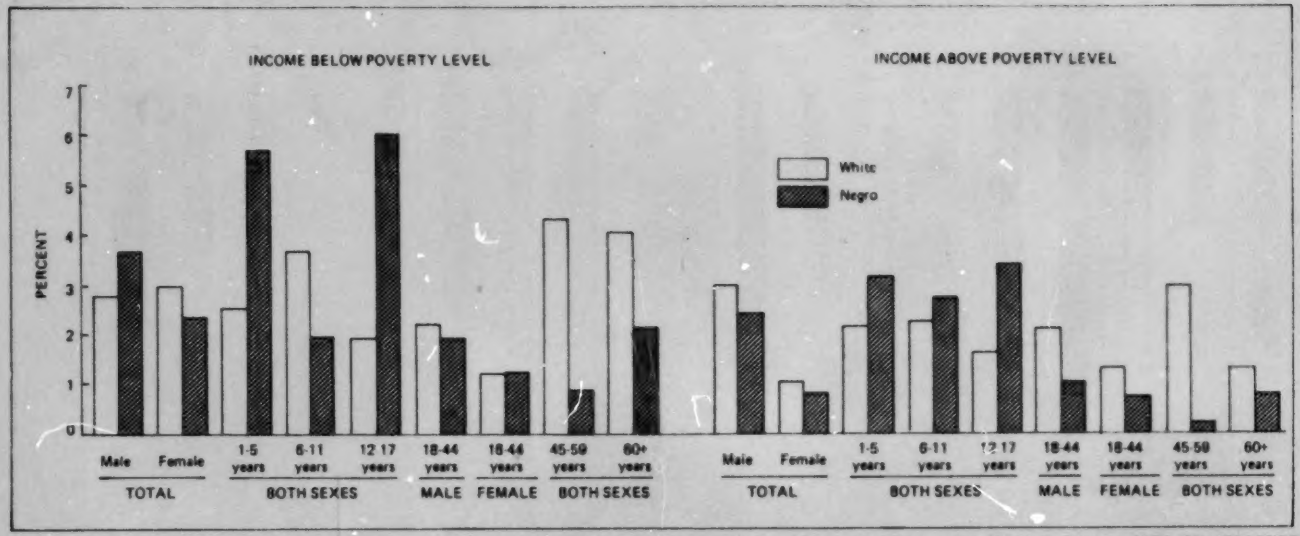


FIGURE 5.—Percent of persons with low serum iron values by age, sex, and race for income levels, United States 1971–72 (HANES Preliminary)

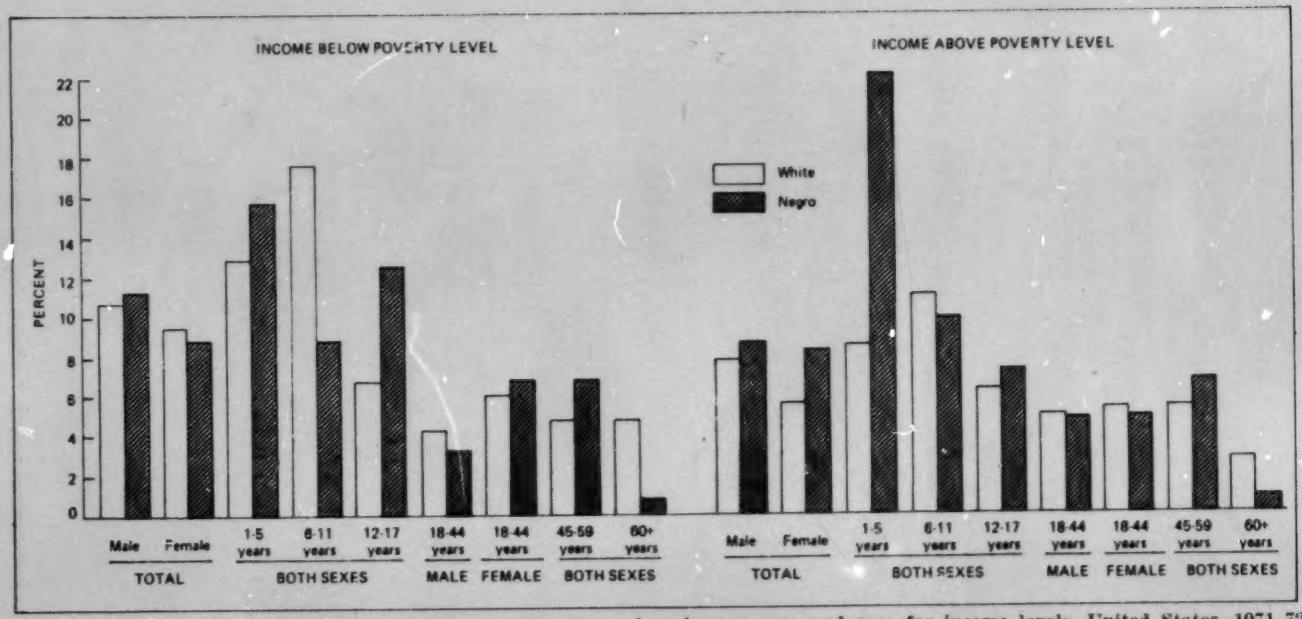


FIGURE 6.—Percent of persons with low transferrin saturation values by age, sex, and race for income levels, United States, 1971–72 (HANES Preliminary)

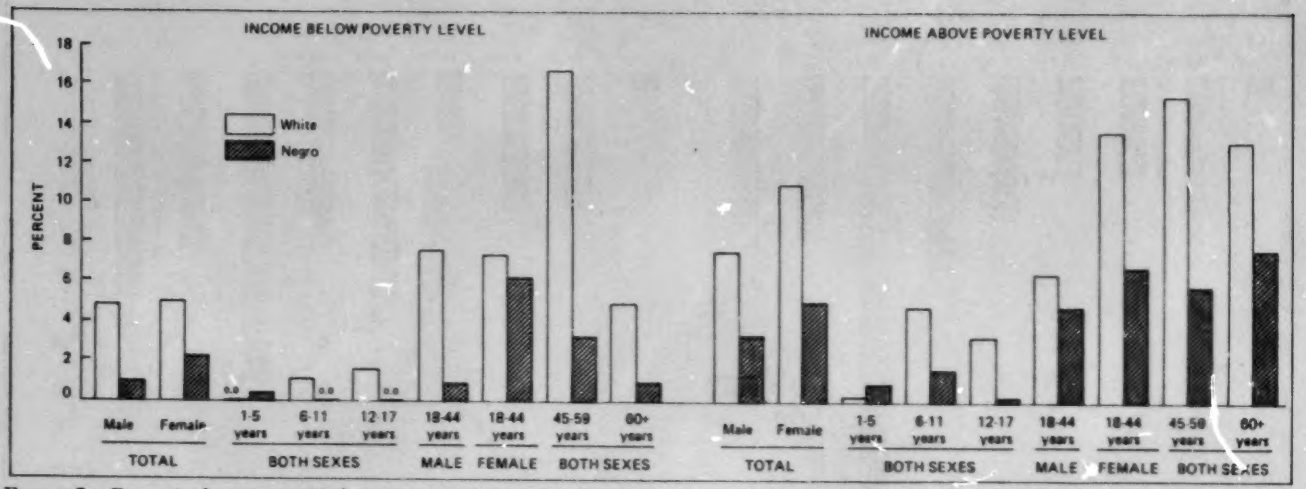


FIGURE 7.—Percent of persons with low serum protein values by age, sex, and race for income levels, United States 1971–72 (HANES Preliminary)

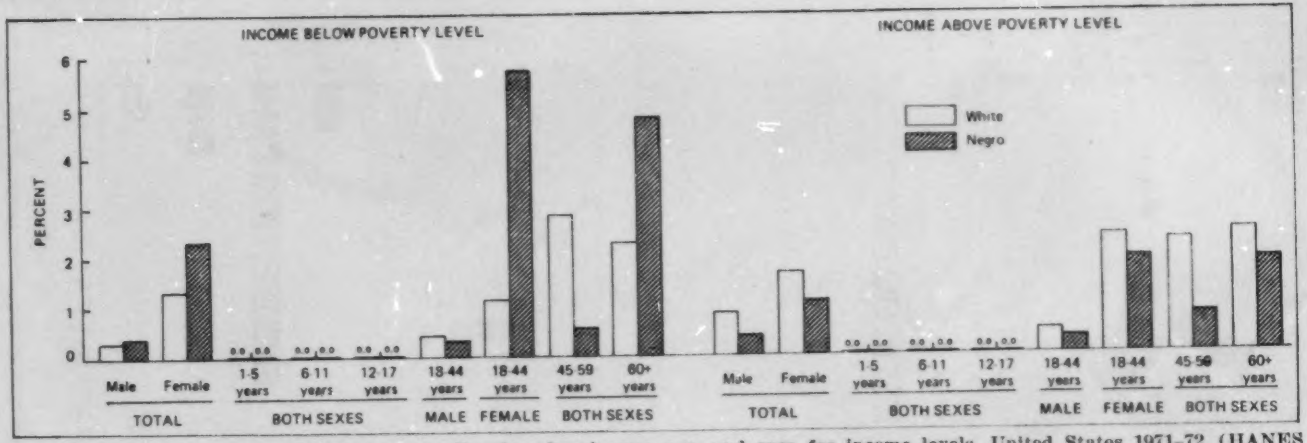


FIGURE 8.—Percent of persons with low serum albumin values by age, sex, and race for income levels, United States 1971–72 (HANES Preliminary)

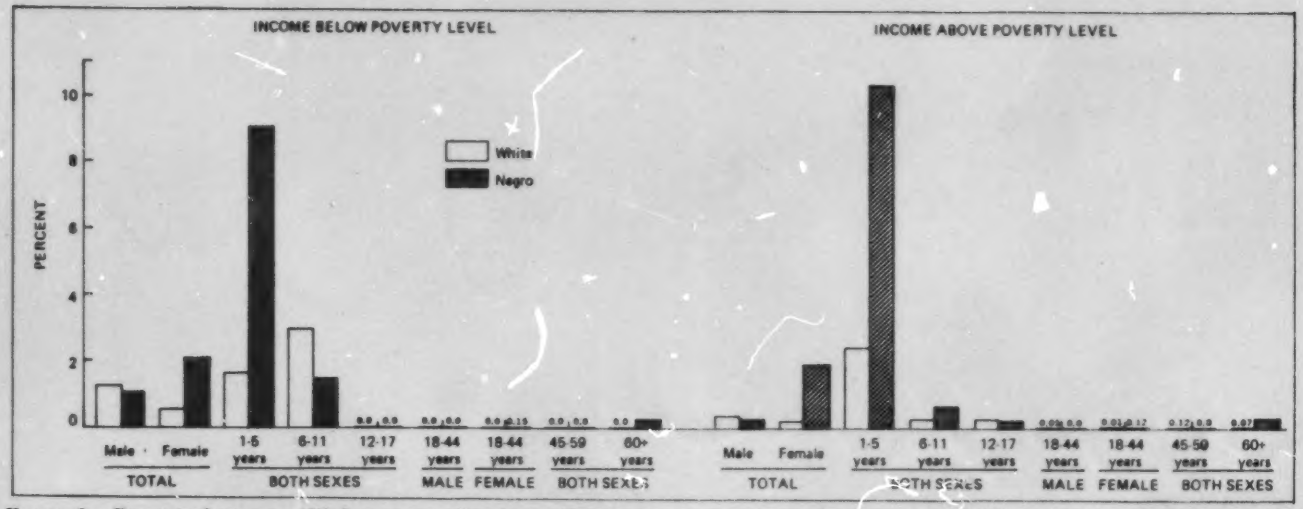


FIGURE 9.—Percent of persons with low serum vitamin A values by age, sex, and race for income levels, United States, 1971–72 (HANES Preliminary)

While nutrient deficiencies strike at most income levels, the foregoing figures show that the poor are at greatest nutritional risk. This was also a finding of the Household Food Consumption Survey and the Ten-State Survey, which said:

> . . . persons with lower income, with lesser parental education, blacks, Spanish-Americans, and persons from low-income areas tend to have a higher prevalence of multiple deficiencies.

Other Factors Affecting Nutritional Health Status

Perhaps the most significant factor affecting the composition of the American diet is food prices. Food prices rose 43 percent between September 1972 and September 1975. This rapid increase has led families to trade down on the food scale, for instance from meat to beans, causing an increase in the prices of staples. At the same time, shoppers are reported to be buying less convenience foods and returning to basics.

Another significant factor is the shift to eating more meals away from home. Between 1971 and 1974 the percent of personal income spent on meals away from home rose from 3.4 to 3.5 percent, and the trend is expected to continue.

An HEW internal report on nutrition, written in 1971, *What Should be the Department's Role in Nutrition and Diet Pertaining to Health?* (Appendix D), to be discussed throughout this report, said that changing patterns of consumption have "made obsolete some of the food fortification and improvement practices initiated by regulations over the last 20 to 30 years . . ."

Still another factor is the change in composition of foods and the use of food additives. In many cases, we possess inadequate knowledge of food composition, and we are unable to measure its impact. In testimony before the Agriculture Subcommittee of the House Appropriations Committee, in April 1974, T. W. Edminster, director of USDA's Agricultural Research Service, said that there were serious inadequacies in data on nutritive value of foods. In answer to a question from Subcommittee Chairman Whitten on the seriousness of the problem of out-dated information, Mr. Edminster said:

> We are getting a great deal of pressure from both Government agencies and industry to extend and revise our reference tables, of which Agriculture Handbook 8, on the Composition of Foods, is the major source reference. It was last revised in 1963. The only reference table dealing with amino acid content of foods dates back to 1957. The only one summarizing data on three of the more recent B-vitamins was issued in 1969. And in many of these, only a few hundred food items may be listed, in contrast to the several thousand now in the market.

Various curative and biological control preparations, increasingly being introduced into the market, also affect nutritional health. For example, use of contraceptive steroid pills may affect Vitamin B_6 nutrition.

Nutrition Knowledge

In spite of the evidence relating nutrition to health, the obvious changes in eating habits and in food itself, Americans have almost no access to a means of measuring their individual nutritional health.

Although there is ample evidence of widespread nutrient deficiency and imbalance, the average medical examination does not thoroughly inquire into the nutritional status of the patient. The rate for heart

attack among men from 35 to 44 years is five times greater when the blood cholesterol level is over 260 mg% than if it is under 200 mg%, yet how many men know their cholesterol level? Iron deficiency anemia is widespread among children and can affect learning, but how many mothers know the iron status of their children?

A draft report on nutrition research now being prepared by the Nutrition Interdisciplinary Cluster of the President's Biomedical Research Panel of the National Academy of Sciences says:

> In general, our approach to good nutrition has been to provide the recommended dietary allowance of nutrients for everyone and more recently to restrict excess caloric intake to reduce the risk for certain diseases. Even though this approach through public health measures and education has been extremely beneficial, it is inadequate in providing optimal nutrition for the individual.

Chapter I of this report will show that the medical profession has been extremely slow to take nutrition seriously. Doctors and nutritionists consulted in the preparation of this report said uniformly that nutritional evaluation in most physical examinations is done in a cursory fashion, if at all; that no uniform standards are currently being applied in nutritional assessment; and that doctors generally do not follow up on prescribed diet changes even though experience indicates that the importance a physician attaches to a diet is a major factor in its success. Possibly the most striking evidence of the medical profession's disdain for nutrition, however, are the findings of malnutrition in hospitals.

In addition to those ignorant of their nutritional status, there are millions of people suffering diet-related chronic illnesses who need proper diet management but who are not receiving it, largely because of a shortage of qualified nutrition counselors. An article by Dr. Lawrence Power, chief of medicine and chief of endocrinology at Detroit General Hospital, offered in testimony at hearings on national health insurance, held in July 1974 by the House and Ways Means Committee, discusses this problem:

> . . . the average patient today is disabled by a disease that has been present for five or ten or more years. The leading causes of death in the United States are now coronary artery disease, obesity, emphysema, hypertension, diabetes and cerebral vascular disease. They are all characterized by progressive (often asymptomatic) stages of development evolving over many years. Yet "the system" continues to address itself to "the crisis." Its emphasis, for example, is on the heart attack and its management, not the coronary artery disease that leads to it and its prevention.
>
> Most patients presently in need of medical care do not have traditional disease illnesses . . . . Most patients have long term, quietly grumbling disabilities that are manageable for protracted periods of time. Diabetes and arthritis come readily to mind. Such patients require the kind of supportive services that few existing health care centers are able to give. Such patients need a new kind of health provider. They need new ways of being instructed in the management of their disorders . . . . The average patient is taught little or nothing about his medication and even less about the aims of therapy. As an example of these shortcomings in the diabetic section area, many patients recently selected at random from within our own waiting room population could not indicate what a food exchange was, why they were testing their urine for sugar, and the meaning of ketones if they found them.

As will be discussed, the HEW internal report, *What Should be the Department's Role in Nutrition and Diet Pertaining to Health?* (Appendix D), indicates that HEW has been aware of the shortage of manpower in nutrition counseling at least since 1971, but it has not acted on the study's recommendations.

Monitoring National Nutritional Health

Chapter II of this report discusses the failure to establish an effective nutrition monitoring system in the United States and the consequences of this failure.

We find, for example, that the nutrition data being used to establish the allotment for the Food Stamp program, as well as standards for other public and private users, are inadequate, being drawn solely from the USDA's Household Food Consumption Survey, which measures consumption patterns but does not measure the impact of consumption on health through physical examination and laboratory testing of biochemical condition.

The first survey to measure both consumption and nutritional health—the Ten-State Nutrition Survey—was conducted from 1969–1970 and was prematurely dismantled when its findings of malnutrition began to force expansion of Federal feeding programs. Its successor, the Health and Nutrition Evaluation Survey, has provided useful information, but its use is extremely limited because it does not identify at-risk groups by location nor are data provided in a timely fashion.

Furthermore there is a need for a continuing monitoring system aimed especially at groups at high nutritional risk that would not only check physical and biochemical status but measure and report on the probable impact of changes in food prices and other important variables.

The internal HEW report mentioned above indicates that the Department was advised by its own officials as early as 1971 of the need to improve nutrition surveillance, but it has not followed the steps recommended.

Filling the Vacuum

The vacuum in individual and collective nutrition knowledge leaves the field open for "painless" diet plans and fraudulent reducing devices. It also allows the food industry through advertising to guide diet choices toward the most profitable foods and toward ever-increasing food consumption. The report of the Select Committee's subpanel on obesity and disease said:

> Since promotion of food is relevant to obesity, it is important to know the magnitude of expenditures for food advertising. Ullrich and Briggs (J. D. Ullrich and G. M. Briggs in "The General Public" in *U.S. Nutrition Policies in the Seventies*) state that this amount is about four billion dollars yearly. In contrast, the Nutrition Foundation, an agency to which many food industry groups belong and which has unbiased and sound nutrition as one of its aims, has only about $100,000 per year available to it for this purpose. Educational materials prepared by the National Dairy Council and National Livestock and Meat Board are in wide use in many classrooms around the nation.
>
> How much money is available for education in obesity prevention to a representative consortium of consumers and health scientists, free of even indirect obligation to the food industry? How much of the public's current attitudes and information are determined by the nature of the advertising to which they are exposed?

Not only do television networks find great economic advantage in food advertising, they would find considerable economic peril in running ads attempting to counter heavy consumption of the foods found related to health problems. A television executive said in an interview

he was free to run nutrition spots showing the virtues of eating nutritious foods that would be alternatives for food such as candy but that pressure from advertisers would not permit spots advising reduced consumption of foods containing high levels of cholesterol or sugar. A recent article in the *Wall Street Journal* reported that "a large soft-drink company" had pulled its ads off WBZ in Boston for a month after the station's consumer reporter read a list of "10 terrible foods," produced by the Center for the Study of Science in the Public Interest. Included in the list were: Pringels potato chips, Wonderbread, bacon, Gerber baby food and Coca Cola.

Attempts to solve nutrition problems through greater general information, such as nutritional labeling, are important, but even this information may be overridden by advertising. The Federal Trade Commission has attacked various erroneous nutrition claims and is now considering a trade regulation that would require food advertisers to provide nutrition information in any ad making a nutritional claim.

The commission rejected, however, a staff proposal for a regulation that would require nutrition information to be included in every food ad.

The report supporting the staff position strongly implied that although certain foods are required to have nutrition labelling, this does not provide adequate protection for the consumer:

> The existence of nutrient labelling is itself an affirmative reason in support of advertising disclosure. Without advertising disclosure, massive food advertising may well undermine or even defeat the intended purpose of nutrient labels. Massive food advertising which avoids the subject of brand—specific nutrition information—and instead attempts to sell food products solely for such factors as taste, appearance and association with social pleasures—has the capacity or tendency to obscure the importance of nutrition and to reduce the importance or relevance of nutritional labels to consumers.

The report further noted a study which indicates that "in the absence of information to the contrary from an authoritative source, consumers believe that heavily advertised name brands are good products, high in nutrient value."

Hearings on the new regulations will be held in January or February 1976. But there is almost no chance that the Commission will reverse itself and accept the staff-proposed rule. An official said the food industry "is lined up to fight World War III if necessary" to prevent it.

Food Production and Nutrition Policy

Until recently it was assumed that traditional patterns of agricultural production and food marketing could be relied upon to provide the majority of Americans with a nutritous diet.

The rise in food and energy prices, starting in 1972, is changing that viewpoint, however. Conservation of resources is replacing consumption as a guide, and the worldwide trend is toward the most effective use of all resources, including food. Whereas resources were perceived to be adequate to provide unlimited selections of all foods, it is now becoming clear that choices must be made between types of food to be grown. Whereas the choice of food to be grown has traditionally been left to the agricultural community, the reduction of plenty is requiring

food producers and manufacturers to share with others in the decisions of how limited resources will be used.

This is the challenge of Frances Moore Lappe in *Diet for a Small Planet* in which she argues that continued high consumption of grain-fed beef in the United States and other nations may be leading not only to health problems because grain-fed beef has a high fat content but to the wasting of food resources since it is more efficient to consume grain directly than through livestock. Lappe estimates that the United States feeds about 90 percent of its oats, corn, barley and sorghum to animals as well as "considerable" quantities of milk products, fish meal and wheat germ. Quoting an official of the USDA's Economic Research Service, she reports "we in the developed countries use practically as much grain as *feed* as those in the poor countries eat directly as *food*." (The high price of grain recently has brought some reduction in cattle feedlot operations. A USDA economist estimates that about 54 percent of U.S. cattle were grain-fed in 1975 compared to about 70 percent in 1974. He expects, however, that grain-feeding will rise to about 60 percent by the end of 1976.)

In his conclusion to *U.S. Nutrition Policies in the Seventies*, a collection of reports by experts, based on the findings of the White House Conference, Dr. Jean Mayer, organizer of the conference and the Select Committee's hearings says:

> . . . the complex food supply of a country of over 200 million can no longer be allowed to evolve solely in response to "the forces of the market."

The challenge to the traditional formulators of food policy was acknowledged by the Department of Agriculture's chief economist, Don Paarlberg, in a speech given in September 1975 to the National Public Policy Conference (Appendix E). He said:

> The biggest issue of agricultural policy is this: Who is going to control the farm policy agenda and what subjects will be on it?

Health, the Governing Factor

In times of shortage, health must be the governing factor in the allocation of resources. The importance of this principle is made clearly in a speech by Dr. C. E. Butterworth, former head of the American Medical Association's Council on Food and Nutrition and director of the Nutrition Program at the University of Alabama Medical Center, delivered in May 1975 to the American Society for Clinical Nutrition:

> . . . Shall the farmer plant his crop oblivious to the health needs of the nation? Must the consumer depend on cleverly contrived television commercials to diagnose his symptoms and formulate appropriate treatment? May the State Department permit overseas shipment of food without first determining the potential effect of such shipment on the health of both the donor and recipient nation?

Under circumstances of reduced resources and increased complexity, it becomes essential that a nation have the best possible knowledge of its nutritional status so that health considerations can properly guide food policy.

Control of Nutrition Policy

Chapter III of this report describes the random efforts of the Department of Health, Education, and Welfare to coordinate nutritional health policy.

It is apparent from the internal report mentioned earlier, *What Should be the Department's Role in Nutrition and Diet Pertaining to Health?* (Appendix D), that HEW officials had, as early as 1971, a clear, comprehensive description of nutrition problems and possible solutions, but for a variety of reasons, the Department has yet to either organize internally around a nutritional health policy or provide leadership in food policy in general.

Key factors in the inability to organize nutrition activity within the department have been the fear of pursuing nutritional health policy into areas traditionally dominated the Department of Agriculture and fear of developing data would challenge the effectiveness of Administration economic policies and support spending for food assistance. Failure to settle fundamental questions at the top of the Executive Branch and the top of HEW have made it impossible to formulate and coordinate policy in the ranks within the responsible agencies.

CHAPTER I

ACCESS TO INDIVIDUAL NUTRITION ASSESSMENT

> The greatest present need is for physicians to educate themselves in the whole area of nutrition. It is not enough to know simply that there are four basic foods; and physicians, particularly medical educators, should accept the criticisms of some laymen and women that there are few full-time departments of nutrition in medical schools . . . physicians should educate themselves, and hence their patients.—Dr. Edward H. Rynearson, from an address delivered to the meeting of the American Medical Association, June 26, 1973.

There has been a drive for more than 10 years to make nutrition a respected element of education in all medical schools. In 1962, the Council on Foods and Nutrition of the AMA and the Nutrition Foundation, an organization supported by the food industry, sponsored a conference on the teaching of nutrition in medical schools, at Chicopee Falls, Massachusetts, after an AMA survey found that "medical education and medical practice have not kept abreast of the tremendous advances in nutritional knowledge" and "there is inadequate recognition, support, and attention given to this subject in medical schools."

A number of studies in addition to the AMA's have documented this failing. In 1958, E. G. High reported in the *Journal of Medical Education* that nutrition was not being adequately covered in medical school curricula, based on questionnaires received from 60 schools. A study by Chi-Pang Wen, Hayleon D. Weerasinghe and Johanna T. Dwyer, *Nutrition Education in U.S. Medical Schools*, reported in the *Journal of the American Dietetic Association*, October 1973, surveyed catalogs of medical schools as current as 1972 and studied questions on nutrition appearing in review books for medical exams. The researchers acknowledged that the study of catalogs had limitations, but they found:

> . . . 20 percent of the medical schools surveyed provided some nutrition education in the core curriculum; however, only one-fifth of them—representing 4 percent of all medical schools—offered an independent course. Nutrition "topics" were usually included in descriptions of biochemistry courses in the basic science curriculum and were seldom mentioned as components of clinical courses. The situation apparently hasn't changed since the last survey in 1958.

The study found that the nutrition questions in the review books were inadequate in quantity and quality, and it said:

> Thus to improve nutrition education in medical schools and/or upgrade the competency of medical practitioners in nutritional counseling and referral, it may be necessary to educate those who construct medical board and licensing examinations as to what nutritional information is needed by physicians in their daily practice.

A report by Dr. Margaret G. Phillips, *The Nutrition Knowledge of Medical Students*, published in the January 1971, *Journal of Medical Education*, found that the performance on a nutrition exam given in 1967 to second year medical students in four Massachusetts medical schools indicated the majority "were not familiar with many of the

60-843—75——3

basic concepts and information related to nutrition that the panel of experts considered to be important for them to know." Out of a possible 100 points, School A scored 46; B, 35; C, 37; and D, 39.

The Chicopee Falls conference recommended that each medical school designate a person or committee to be responsible for nutrition education and take other steps to raise consciousness about, and greater financial support for, nutrition education.

Ten years later, the same groups held a similar conference in Williamsburg, Virginia, and the summary of the proceedings reported:

> While progress has occurred in some schools since that time (1962), the teaching of nutrition has not generally been integrated into the curriculum of the medical student, the training of the house staff or the allied health professions . . .
>
> There were "a few identifiable teaching units in nutrition within American medical schools . . . with a formally named director, coordinator and staff. Some of these present required courses in nutrition supported by electives. In other schools the nutrition content is interspersed within the curriculum of the usual departmental teaching programs and specifically defined nutrition courses exist only as electives . . .
>
> Rarely does there exist funding specifically assigned to support nutrition training of medical students. Federal funding for this purpose has not been allocated. The existing training grants in nutrition provided by the National Institutes of Health are designated for research training, not for teaching applied nutrition to medical students.

Dr. Philip White, head of the AMA's Department of Foods and Nutrition, the successor of the Council on Foods and Nutrition, reports that there has been "very definite progress since the 1972 conference." A report compiled in 1974 by the AMA's Department of Foods and Nutrition said that of the 85 medical schools responding to a questionnaire (there are about 110 medical schools in the United States) 57 had identifiable course material in nutrition in their curricula. Twelve of these had nutrition courses only in the basic science courses; 33 had nutrition training in the more important clinical education; and 12 had it in both clinical and pre-clinical courses. Thus, 47 schools out of 85, or better than 50 percent, offered some significant nutrition training, Dr. White said.

The report said: "It is evident that continued efforts are required to obtain adequate infiltration of nutrition into the curricula of most schools." The AMA sponsors visiting professors to assist medical schools in nutrition training and is planning to provide a scholarship for nutrition research for medical students.

Senator Richard S. Schweiker, a member of the Select Committee, introduced legislation, most recently in 1973, that would have provided grants of $10 million for each of 5 years to assist medical and dental schools in strengthening nutrition education in their curricula. The bill has not subsequently been resubmitted by Senator Schweiker. Its intent has been accomplished under the Special Projects section of the Public Health Service Act. This section has provided grants to stimulate training in various areas, including nutrition. However, the Public Health Service Act as passed by the House in July 1975, dropped the Special Projects section. It continues in the Senate versions, S. 989 and S. 3157. The Administration bill, introduced in December 1975, includes grants to schools for graduate training in public health nutrition.

The Special Projects section may not be included in the bill finally reported out of the Health Subcommittee of the Senate Labor and Public Welfare Committee as competition for funds is great and the value of the Special Projects section is doubtful to some. It is con-

ceivable however, that a special section on nutrition training could be included in the bill, given adequate support.

In hearings on nutrition education held by the Select Committee in 1973 and chaired by Senator Schweiker, Dr. Stanley Schultz, of the University of Pittsburgh School of Medicine offered some insight into medical schools' reasons for failing to embrace nutrition education.

Perhaps the most important element of education in nutrition; namely the use of nutritional counseling as an instrument of preventive medicine, has been grossly understressed.

Most deficiency states can be readily diagnosed and equally readily treated, but in this country they should never have occured in the first place.

The reasons for these occurrences are multiple, and many of them, for example, economic pressures, are beyond the scope of medical education.

Nevertheless, medical education is not entirely without fault. Its focus is largely on diagnosis and treatment and the well-known proverb "an ounce of prevention is worth a pound of cure" is just beginning to see the light of day; given the skyrocketing costs of medical care today one might well paraphrase this statement to read "an ounce of prevention is worth a ton of cure."

In short, few medical school curricula adequately stress the potential preventive accruements of proper nutrition in a systematic fashion.

Although every well-trained physician will question their patients with respect to whether or not they smoke cigarettes and how much alcohol they consume, dietary habits are for the most part ignored unless indications of undernutrition or overnutrition are already apparent.

One of the reasons for the lack of systematic emphasis on nutrition counseling in medical education is that too little is known with respect to the way in which long-term and presumably normal nutritional habits may predispose individuals to acute as well as chronic diseases.

Far more research is needed in these areas and it is not unreasonable to expect that teaching effectiveness will parallel the acquisition of knowledge.

But, perhaps equally important, current curricula tend to underplay preventive medicine in general and the role of nutritional counseling as an instrument of preventive medicine in particular.

For the most part, this subject is taught within the context of acquired diseases so that the inevitable emphasis is one of "crisis medicine" rather than "crisis prevention."

Examination Failure

One of the most important consequences of this flaw in medical education is the failure of many doctors, if not most, to do a thorough evaluation of patients' nutritional status, conducting physical examinations with an eye for nutrition-related illnesses and performing tests that will reveal nutritional condition.

Doctors and nutritionists interviewed for this report each offered differing criteria for judging nutritional status, and there is no commonly agreed upon standard checklist for measuring it, but all agreed that nutritional evaluation is too often not done at all in general physical examinations. Attempts are being made, however, to develop standards for this evaluation. The National Academy of Sciences' Food and Nutrition Board is working on a handbook that will provide doctors with guidelines for nutritional assessment, and the Department of Health, Education, and Welfare is writing nutritional screening guidelines for its community health clinics.

One of the most complete listings of criteria for both individual and community nutrition assessment is provided in *Nutritional Assessment in Health Programs*, compiled from the proceedings of a conference sponsored by the American Public Health Association under contract from HEW and published first in 1973. Table 3, from that report, presents a plan for various levels of nutritional assessment for adults that might be undertaken for an individual or for a group survey. Data gathered at each level is used as a basis for the next level of examination.

TABLE 3.—LEVELS OF NUTRITIONAL ASSESSMENT FOR ADULTS

Level of approach	History		Clinical Evaluation	Laboratory evaluation
	Dietary	Medical and socioeconomic		
Minimal	Present food habits; meal patterns; empty calories; dietary supplements.	Name, age, sex; address; socioeconomic level; number in family; brief medical history (including family).	Height and weight; blood pressure	Hemoglobin; simplified Dipstix ® evaluation which would identify presence of protein and glucose in blood, urinary pH.
Midlevel	Semiquantitative determination of food intake.	Sequential history: Present health, past history, review of systems, family history, social history (e.g., Cornell medical index); smoking history.	Anthropometric measurements (skinfold thickness, etc.); brief examination by M.D. or physician's assistant; chest X-ray as indicated.	Evaluations for serum cholesterol, vitamin A, vitamin C, and folic acid; urine excretion for thiamine.
In-depth level	Household survey data; quantitative 24-hr recall; dietary history; diet patterns as they might influence lipogenic characteristics.	All of the above; personal interview by physician; family history of cardiovascular disease.	Comprehensive health status evaluation by an appropriate health team, by or under supervision of a physician.	Serum triglyceride level, plus those nutrients in midlevel; urine or serum evaluation of pyridoxine status (vitamin B_6 nutriture); evaluation of protein nutriture by height, weight, and chronological age indices; serum essentials and nonessential amino acid ratios; evaluation of vitamin B_{12} nutriture by serum analysis; serum iron and serum iron binding capacity; adipose tissue aspiration and fatty acid analysis by gas-liquid chromatography.

Dr. George Christakis, editor of the report, recommends that any general physical examination involve evaluation at least up to the mid-level indicated in the table. He says that most physicians do not give this kind of attention to nutritional status. Appendix F provides other charts from the nutritional assessment report for the evaluation of infants and children; adolescents and the elderly. It is clear from the lengthy list of tests for the elderly that they are a group at special risk and probably the group most neglected in nutritional assessment.

Another set of guidelines for assessment, prepared by Dr. C. E. Butterworth, director of nutrition at the University of Alabama Medical Center and Dr. George C. Blackburn, assistant professor of surgery at Harvard Medical School, appear in the March–April 1975 issue of *Nutrition Today*. The guidelines were developed in response to conditions found in a number of hospitals and discussed by Dr. Butterworth in the March–April 1974 issue of the same magazine.

I am convinced that iatrogenic malnutrition has become a significant factor in determining the outcome of illness for many patients. (Since "iatrogenic" is merely a euphemism for "physician induced," perhaps it would be better to speak forthrightly and refer to the condition as "physician-induced malnutrition.") I suspect, as a matter of fact, that one of the largest pockets of unrecognized malnutrition in America, and Canada too, exists, not in rural slums or urban ghettos, but in the private rooms and wards of big city hospitals.

Dr. Butterworth, who has trained medical students and house doctors, presented five case histories of patient malnutrition that prolonged illness, and said: "I have had the opportunity to visit a number of hospitals, and to discuss the situation with many physicians and nutrition scientists. As a result, I am convinced that the problem of hospital malnutrition is serious and nationwide."

The article then lists the following failings affecting the nutritional health of hospital patients.

1. Failure to record height and weight.
2. Rotation of staff at frequent intervals.
3. Diffusion of responsibility for patient.
4. Prolonged use of glucose and saline intravenous feedings.
5. Failure to observe patient's food intake.
6. Withholding meals because of diagnostic tests.
7. Use of tube-feedings in inadequate amounts, of uncertain composition, and under unsanitary conditions.
8. Ignorance of the composition of vitamin mixtures and other nutritional products.
9. Failure to recognize increased nutritional needs due to injury or illness.
10. Performance of surgical procedures without first making certain that the patient is optimally nourished, and failure to give the body nutritional support after surgery.
11. Failure to appreciate the role of nutrition in the prevention and recovery from infection; the unwarranted reliance on antibiotics.
12. Lack of communication and interaction between physician and dietitian. As staff professionals, dietitians should be concerned with the nutritional health of every hospital patient.
13. Delay of nutrition support until the patient is in an advanced state of depletion, which is sometimes irreversible.
14. Limited availability of laboratory tests to assess nutritional status; failure to use those that are available.

In the more recent article, Butterworth and Blackburn say:

It is our belief that malnutrition has for too long been identified with the "classical" vitamin deficiency syndromes by physicians and other health professionals. Although these far-advanced syndromes are occasionally encountered

and should not be missed, overt vitamin deficiencies are best regarded as rare medical curiosities. By contrast, protein-calorie malnutrition, which henceforward will be referred to by the abbrevation "PCM," which develops in the hospital, has been found to affect from one-fourth to one-half of medical and surgical patients whose illness has required hospitalization for two weeks or more.

The standards used in accreditation of hospitals deal with nutrition, but primarily in relation to food preparation and the duties of dietitians in assuring that patients have a proper diet. As will be discussed, dietitians rarely have time to perform all the duties specified in the accreditation standards. The AMA has proposed to the Joint Commission on Accreditation of Hospitals revised standards for nutritional care that would place greater emphasis on nutritional assessment and monitoring.

Appendix G contains the Butterworth-Blackburn article and tables for patient evaluation, offering standards that would be useful for examinations in doctor's offices as well as hospitals. It is apparent that since this kind of information is needed for hospitals it is not being used generally by doctors outside the hospital.

Butterworth and Blackburn place the responsibility for nutritional health of hospital patients squarely on the doctor.

> The attending physician must bear the ultimate responsibility for determining the patient's nutritional requirements and providing a means to supply them under the circumstances dictated by the clinical situation. His function is catalytic since without his initiative the ancillary resources of the hospital cannot be activated on behalf of the patient. Only on his signal can the special skills of nurses, dietitians, pharmacists, and consultants be brought to bear on the problem at hand. If these services are inadequate, the physician resolutely should send the patient to another hospital capable of providing whatever nutritional support services are necessary to sustain the patient during his illness.

And Dr. White, of the AMA's Department of Foods and Nutrition, said in an article in the September 1975 issue of *Comprehensive Therapy*:

> Studies carried out by the department of foods and nutrition have revealed that, although physicians usually remember to give dietary orders, they do not always remember to ascertain if the patent is, in fact, eating the diet prescribed. This was found to be true whether a house diet or a special therapeutic diet was ordered. To be on the safe side, the physician cannot assume that a patient eats. He should establish a chain of communication that brings such matters to his immediate attention. He should learn the first names of the dietitians. Although most hospital stays are of relatively short duration, he should not take nutrition for granted.

This principle of responsibility should be applied to out-patient treatment as well. Sheila E. Henderson, director of the nutrition section of Lutheran General Hospital in Park Ridge, Illinois, said that one of the major causes for failure to adopt a new diet is lack of interest by the patient's doctor. The same point was made by Dorothy Kolodner, a nutrition consultant at Magee-Women's Hospital in Pittsburgh, testifying before the hearings on nutrition education chaired by Senator Schweiker:

> It is still my conviction that the physician remains the principal change agent that many patients listen to because of our inculcation of who is the primary source of information, who is the person that really knows and that these physicians were (giving) very little incentive for patients to either improve diet, restrict diet or whatever the prescription might be.
>
> The other thing that was interesting to me was that once the patient had been given over to the nutrition aide, the doctor was really not very much interested

in following up with what happened. He made very little correlation between the outcome of that pregnancy and the patient's pregnancy nutritional status or delivery status, what happened to her after she left the acute care delivery system.

The Nutrition Counseling System

Doctors often defer the job of nutrition evaluation and counseling to dietitians and nutritionists. The structure of the nutrition counseling system is not easily definable, but it is possible to categorize the services offering nutrition assistance and problems in expanding this assistance. (The following summary will discuss counseling related primarily to medical services and does not cover assistance offered by agencies such as the Department of Agriculture's Extension Service.)

There are no accurate figures on the number of dietitians and nutritionists employed in the United States. HEW's Bureau of Health Manpower has made no recent study in this area, and as will be discussed, it does not have the capacity to make one or to estimate manpower needs in nutrition. HEW's *Health Manpower Statistics 1974* reports 44,000 dietitians and nutritionists employed in the United States, but this figure is based on projections from the 1970 Census, and experts consider it quite high, with the error possibly due to inaccurate reporting of occupation on Census forms. The American Dietetic Association had 25,035 members in 1974. A comparison of ADA members working in hospitals with HEW estimates in this work category indicate that the ADA represents most hospital dietitians. If it can be assumed this is true for all work categories, and if expert estimates are taken into account, we arrive at an approximation of 30,000 dietitians and nutritionists employed full-time in the United States. (The distinction between the terms dietitian and nutritionist are not well defined. The ADA describes a nutritionist as a dietitian with advanced training, usually involved in community health programs. The association is trying to phase out the term nutritionist.)

Not all dietitians and nutritionists are involved in counseling. An ADA job survey in 1974, answered by 19,000 members, showed the following numbers involved totally or in part in counseling.

Hospitals	5,000
Public Health	1,000
Private practice	700
Total	6,700

The actual number doing counseling may be larger, since all members did not answer the questionnaire, but as the following discussion shows, these numbers are wholly inadequate to the need.

HOSPITALS

The 1974 survey showed the largest number of respondents, 10,500 working in hospital or health maintenance organizations. However, an ADA official estimated that perhaps only 40 percent of this total spend their time counseling patients. The majority are either strictly administrators or have responsibility for over-seeing food preparation and counseling patients.

Hospital dietitians generally work under difficult conditions; usually the dietitian-patient ratio is about 1 to 100. Dr. Lawrence Power,

chief of medicine and endocrinology at Detroit General Hospital, described the circumstances of many hospital dietitians in an article in the *Journal of Nutrition Education*, October–December 1973, entered as testimony during national health insurance hearings held in July 1974 by the House Ways and Means Committee:

> She is routinely called at the last minute to instruct patients who have been hospitalized for several weeks and are now dressed for discharge with waiting relatives double-parked on the street below.
>
> Even without these routine impediments, the dietitian is expected in a consultation or two to change the life-long habits of a group of slowly comprehending patients for whom truly effective training would require hours of time and weeks of visits.

An official of the American Hospital Association said that many dietitians would have more time for counseling if they delegated more of their non-counseling duties, but she acknowledged that in most hospitals dietitians would have difficulty meeting the hospital accreditation standards requiring them to make rounds with doctors when necessary because these rounds are often irregularly scheduled.

Statistics gathered in 1969 by HEW, reported in *Health Manpower in Hospitals*, found 9,400 dietitians employed full-time in hospitals of all types, including Government-operated hospitals, with 6 percent of the budgeted positions unfilled. The vacancy rate was 3.9 percent in Federal hospitals; 7.9 percent in State and local government hospitals; and 5.8 percent in nongovernmental hospitals.

A preliminary report of a 1973 HEW study of hospital manpower, *Survey of Selected Hospital Manpower, February 1973*, found 9,377 full- and part-time dietitians employed in "community hospitals," that is hospitals both publicly and privately owned offering general medical and surgical care rather than specialized care such as for tuberculosis. The national vacancy rate was 4.9 percent. Vacancy rates by region were: Northeast, 4.5 percent; North Central, 4.5 percent; South, 6.9 percent; and West, 3 percent. The 1973 survey found 6,986 dietitians employed in community hospitals full-time. The report cautions, however, that there may be considerable error in its figures because of sample size and sampling error.

A growing number of hospitals and health maintenance organizations are offering nutrition counseling for out-patients. An example is Lutheran General Hospital in Park Ridge, Illinois, where diet counseling is done on both an individual and group basis. (In the case of group counseling, the patient attends an individual counseling session before joining a group.) Appendix H is the out-patient fact sheet explaining the service to doctors. The hospital has a continuing diabetic counseling clinic, which charges $35 for four 1½ hour sessions, and a continuing obesity clinic is being planned. The hospital also offers individual counseling at the rate of $12 an hour.

Sheila E. Henderson, director of the hospital's nutrition section, says that for every person using the service:

> There are many more with the same or greater needs who cannot afford it or are not willing to pay for both health insurance (and the service). There are many more who assume that it really couldn't be very important if it is not covered by any insurance programs and are not fortunate enough to have a physician who recognizes and supports the need.
>
> . . . since nutrition counseling is not covered by any federal health care legislation nor available through Blue Cross or any other private third party payers, the cost of providing this service is the major deterrent to its expansion.

The hospital also offers nutrition counseling for its ambulatory care, prenatal and family planning clinics, and the nutrition staff also gives community nutrition presentations.

The Lutheran General dietitians are part of the division of medicine rather than food preparation, unlike those in most hospitals. There are about 80 patients for each dietitian, but this still does not permit patients the kind of attention they should have, Mrs. Henderson says.

Mrs. Henderson's concerns about third party payment reflect the position of the ADA. In a statement prepared for the annual meeting of the American Dietetic Association in October 1975, Joan M. Karkeck, assistant director of dietetic services at Harborview Medical Center in Seattle said:

> We are struggling in our hospital to maintain a position for a part-time dietitian to work in our outpatient clinics. The demand for the service exists and is growing. The hospital association reports that outpatient visits increased 11.2 percent in 1974 while hospital occupancy continues to decline. The Nutrition Clinic at Harborview had a 40 percent increase in patient visits in 1974. We feel confident the need and the demand for an outpatient nutritionist exists, but we are less than confident that we can maintain the service because we are seldom reimbursed. Welfare in Washington and most other states will not pay for rehabilitative or preventive health care. We may be forced to limit or eliminate welfare patients because of this. Third party payers such as medical insurance companies have been very hesitant to pay for nutrition counseling, outside the hospital. Indeed, I have known patients who were hospitalized for little more than nutrition counseling and general health teaching. This is, at best, a costly answer to the problem.

She then quoted from a report in the January 1975 *Journal of the Canadian Dietetic Association* that estimated that the expenditure of $25.7 million in salaries for 2,155 nutritionists would save $174.3 million in hospital care costs.

The ADA is also urging that Medicare and other third party payers cover nutrition counseling in the home as part of home health care visits.

PUBLIC HEALTH CLINICS

The 1974 ADA survey found 1,800 dietitians and nutritionists employed in public health. Of this total, the ADA spokesperson said, about 1,000 are involved in direct counseling, with the others in administrative positions.

Most of the government effort in dietary counseling is directed toward pregnant women, mothers, infants and children. This is seen as a high risk group and one with the highest probability of following dietary advice. Adults other than pregnant women and mothers generally have less access to these services. The 56 States and territories each have Maternal and Child Health Programs and Crippled Children's Programs, of which nutrition counseling is an integral part. Historically, Title V of the Social Security Act, which covers maternal and child health, has supported nutrition services, including dietary counseling.

In addition, there are 157 community health centers, including migrant and Appalachia health projects, but an official of the Department of Health, Education, and Welfare said that HEW does not have a complete idea of the extent and kind of nutrition services being offered in these clinics, and the Department is preparing nutrition screening procedures to strengthen the nutrition component of these clinics.

Appendix I is a Library of Congress report on Community Health Service Center programs, showing numbers of people served and the legislative history relating to nutrition in these centers. The report shows that nutrition has been low priority or had no priority in the centers.

State sponsored nutrition counseling services vary widely from state to state. The most recent report offering any impression of service is a listing of nutrition positions, prepared in 1973 by HEW. Appendix J is an article by officials of the Center for Disease Control, based on the report, describing State nutrition activities in general and suggesting an agenda for the States. The HEW report shows a total of 496 positions, of which 51 were vacant. Many of these, if not practically all, are administrative positions, however, some of them carry responsibility for clinical services including counseling. In addition, others in the clinics, doctors and nurses, also provide counseling.

In addition, many city and county health agencies employ nutritionists, and it is estimated that there are about 500 nutrition positions in these jurisdictions, nationwide. At this level the nutritionists usually spend most of their time in direct counseling. Nutrition counseling is also provided in the home by dietitians and visiting nurses.

NUTRITION REFERRAL SERVICES

The most recent development in nutrition counseling is the nutritionist who practices privately, advising patients referred by doctors. The ADA survey showed about 700 dietitians and nutritionists in private practice, but a number of these act as consultants to nursing homes.

Developing a referral practice is difficult, according to Carol Hunerlach, who began in private practice in Maryland in 1968. She has a B.S. in nutrition from Iowa State University and also has completed a post-graduate residency in biochemistry at the Israel Institute of Technology in Haifa and received an M.S. in medical dietetics from the University of Delaware. She has counseled referrals from about 100 doctors, but she finds the volume not large enough to provide full-time occupation.

The major problem confronting nutrition referral, says the spokesperson for the ADA is that "very few people will pay for nutrition counseling." Consequently, the ADA hopes that referral service will be covered eventually by third-party payments.

The Third Parties

As already mentioned, a major change that would contribute to expansion of nutritional counseling services is third-party payment for out-patient counseling. The Blue Cross Association, the policy coordinating and monitoring group for Blue Cross plans, reports that Blue Cross plans generally cover only in-patient nutrition service, not out-patient counseling, although nutrition service may be covered in a Home Health Care plan now under consideration. Walter J. McNerney, president of the Association has expressed concern for nutrition as part of preventive medicine, but the Association has not made a national policy statement on nutrition. Medicare and Medicaid use

essentially the same criteria as Blue Cross in relation to nutrition services. National health insurance proposals vary in their coverage of nutrition counseling. H.R. 1, the Kennedy-Gorman Bill, would provide the kind of coverage sought by the ADA.

Senator George McGovern, Chairman of the Select Committee, introduced a bill in October 1975, S. 2547, that would authorize reimbursement for nutrition counseling as a home health service under Medicare.

Discussion

Reviewing the situation, we find doctors are generally unprepared by their medical training to appreciate the importance of nutrition and consequently they are unprepared to make thorough nutrition evaluations or to do conscientious nutrition counseling. Only about half of the Nation's medical schools, by estimate of the American Medical Association, offer nutrition training that might be considered approaching adequacy. This estimate may be high, but in any case there has been improvement over the last 10 years. There is quite a way to go however, judging from findings of malnutrition in hospitals. Drs. Butterworth and Blackburn report that one-quarter to one-half of general medical and surgical patients hospitalized for two weeks or more may suffer from protein-calorie malnutrition.

HEW has recently taken more interest in nutrition training of doctors. An official in the Division of Medicine of the Bureau of Health Manpower has been making limited inquiries into the area of nutrition education in medical schools and medical schools have been advised that nutrition is among the priority items for grants funded under the Special Projects section of the Public Health Service Act. HEW is making no study, however, of the degree to which nutrition training has been introduced into medical education, nor is anyone in the Department assigned to deal specifically with this problem.

The limited training and interest in nutrition among doctors has resulted in the almost total transference of the task of nutrition evaluation and counseling to dietitians and nutritionists. Unfortunately there are not enough of these specialists to meet the need.

In 1971, the internal HEW report *What Should be the Department's Role in Nutrition and Diet Pertaining to Health?* (Appendix D), pointed out that there was a serious shortage of nutrition manpower.

> On the basis of program experience many health officials feel that data such as the following indicates a shortage of nutrition manpower which may require more attention in health manpower legislation and its implementation. The vacancy rate in nutrition positions budgeted in State and local health agencies continues to be between 15 and 20 percent. In an informal (1966) study of Projected Needs for Public Health Nutritionists in State, city and county levels, replies from 37 States indicated that present supply would need to be increased by 100 percent. A wide range in ratios of dietitians and nutritionists to population exists in States, e.g., Utah with 6/100,000 population versus Massachusetts with 22/100,000. Forty-five States have less than 20/100,000 population. Using a ratio of 1/50,000 population (the) Division of Allied Health Manpower computed that about 4,400 community nutritionists would be needed. PHS-AHA surveys indicated that many openings for dietitians are unfilled. Surveys indicate that an estimated 20,700 dietitians will be needed in hospitals in 1975 compared to approximately 13,000 presently employed.

To increase the number of nutrition personnel, the report suggested:

> . . . making nutrition personnel eligible for payments as providers of health care services and stipulating dietary counseling services as an eligible service for third party payment in national health insurance plans. This would require that *legislation* identify nutritional care as an essential component of preventive health care services and stipulate dietary counseling services as an eligible service for third party payment.

And the report said:

> "Nutritional service must be a reimbursable item in health care if it is to become a part of the health care system."

In spite of this 1971 report, HEW has taken no real action to increase nutrition manpower. The Division of Associated Health Professions, under the Bureau of Health Manpower, which would be the vehicle for Federal stimulation for nutrition training, has been operating for the last 2 years on a continuing resolution and has not had enough staff to study nutrition manpower needs. There is no official in HEW charged with the sole responsibility of increasing nutrition manpower.

HEW does fund grants for advanced training in nutrition, but these are completely inadequate to the need. HEW and ADA officials estimate that Government and privately financed training in advanced nutrition study, leading to masters and doctoral degrees, produces from 200 to 250 graduates a year, nationwide. This does not even keep up with demands for nutrition faculty, an HEW official said. The ADA estimates that 1,500 to 2,000 students a year receive baccalaurate degrees in nutrition, but most of those receiving this training are women, and some do not stay in the workforce when they marry.

These statistics reveal a shortage of graduates with advanced degrees in nutrition to fill leadership roles and a critical shortage of nutritionists and dietitians for evaluation and counseling.

Recommendations

1. That Congress approve a Nutritional Health Manpower Act that would require the Department of Health, Education, and Welfare to spend a specific amount annually on:

a. Introduction of classroom and clinical nutrition training into all U.S. medical and dental schools, with a target date for completion of 1980.
b. Expansion of training facilities for dietitians and nutritionists and scholarship programs aimed at drawing low-income students into the field.
c. Assisting in the establishment of nutrition referral services nationwide.

HEW should be required to report annually to the Congress on its progress in this area.

2. That Congress require HEW, in concert with professional organizations, to review medical licensing examinations to determine how they might be changed to encourage improved nutrition education in medical schools and that HEW provide Congress with recommendations by June 30, 1976.

3. That Congress approve S. 2547 to provide Medicare coverage for nutrition counseling as a home health service and that Congress require HEW to consult with third party health insurance payers to develop guidelines for coverage of out-patient nutrition counseling.

Recommendations to Congress on legislation to provide for outpatient nutrition counseling under Medicare should be made no later than June 30, 1976.

4. That Congress require HEW to review regulations and laws governing Federal and State health care delivery services to determine changes necessary to ensure that nutrition evaluation and counseling are provided by all these services. Recommendations to Congress should be provided by June 30, 1976.

5. That Congress require HEW to consult with appropriate professional organizations and health care providers to determine:

a. Current capabilities nationwide for individual nutritional assessment and counseling.

b. Projected technical and manpower needs in this area over the next 10 years.

Recommendations should be required by January 1, 1977.

6. That HEW consult immediately with the American Hospital Association and professional groups to determine a means of effecting the adoption of nutrition evaluation and care standards in hospitals and that a report on progress be requested by Congress by June 30, 1976.

7. That Congress require HEW to embark on a continuing campaign of public education in nutrition that would concentrate on: foods that may be harmful to health, especially those considered too often eaten in excess; common dietary deficiencies; alternative diets; and standards for measuring the quality of nutritional evaluations that should be given during physical examinations. An annual report would be made to Congress on the progress of this campaign for a period of not less than 5 years.

Chapter II

NATIONAL NUTRITION ASSESSMENT

Surveillance of nutrition in the United States cannot be accomplished by national surveys which produce some nice figures but usually do not indicate what needs to be done. The nutritional problems in various parts of the country, in various communities, among cultural groups, and so forth, are variable and to a greater or lesser degree require solutions appropriate to the respective groups. We must strive for regional or state systems which will identify problems and provide the support for local programs.—D. Mark Hegsted in an article appearing in the *Journal of the American Dietetic Association*, April 1974.

The importance of studying the Nation's nutritional health is explained concisely in testimony before the Agriculture Subcommittee of the House Appropriations Committee in April 1974, in which T. W. Edminster, director of the Agricultural Research Service listed the uses of the Household Food Consumption Survey.

Information about food consumption and dietary levels is essential to development and updating of USDA food plans or budgets. These food plans are basic to many current Government policies and programs, such as the determination of the poverty line for families of different size and composition, determination of the cost of a nutritionally adequate diet that can serve as a basis for food stamp allotments and even provide the data that would be needed in the event of any price control or food rationing programs. The food consumption data are also used in developing reliable production projections and in making realistic adjustments in production.

These household food consumption surveys provide the information on food use at the purchase level that is likely to be used in developing specifications of nutrient fortification. The Food and Drug Administration plans to use the data to determine which groups of individuals may be taking in foods with any unusual amounts of additives or residues. The National Marine Fisheries Service is depending on this proposed nationwide survey to meet their data needs on consumption of such things as mercury in fish products. And, of course, the food consumption surveys give direction to nutrition and consumer education programs of the Department and of other Federal agencies, since it will tell which population groups have diets most in need of improvement, what nutrients in the diet are below recommended levels, and what specific foods contribute to the total nutrients in the diet.

As the testimony notes, the data being used now to establish the allotment for the $6 billion food stamp program and for other dietary guidance purposes by USDA and other agencies are being taken from the Household Food Consumption Survey, conducted most recently in 1965–66. A food consumption survey measures food intake, but it is not the best measure of nutritional health. Because it does not gauge the physical health of the body, there is no measure of the impact of the diet.

The importance of physical and biomedical measurement is explained in an article in the July 1974, *Journal of the American Dietetic Association* by Dr. Milton Z. Nichaman, then chief of the Preventable Diseases and Nutrition Activity at the Center for Disease Control.

The major objective data utilized for determining nutritional status are anthropometric and biochemical. The purpose of data on dietary intake in the assessment of both the individual and population groups is to identify avenues for intervention. Although biochemical data may show that a group of individuals is iron deficient, this information is of limited value in planning a program to correct the situation unless one has considerable knowledge of the dietary habits of the group. Conversely, just because an analysis of dietary intake shows that iron intake is below the recommended allowance, there is no assurance that the population is, in fact, iron deficient.

Given the problems of collection and analysis of food consumption data, nutrient losses during handling and cooking of food, and the vagaries of the human memory, the suggestion gleaned from dietary data that a population group is ingesting suboptimal amounts of a nutrient must be confirmed by more objective data. These include biochemical values, body measurements, and the presence or absence of clinical signs.

The deficiencies of the HFCS, particularly as a basis for setting standards for food assistance programs, will be discussed in greater detail later. It is apparent from the foregoing why, although USDA had been conducting food consumption surveys since before 1900, Americans were shocked in 1967 and 1968 by the reports of malnutrition in the United States, of hunger amid plenty.

These discoveries prompted Congress to approve, in December 1967, in the Partnership for Health Amendments, a charge to the Secretary of Health, Education, and Welfare to "make a comprehensive survey of the incidence and location of serious hunger and malnutrition and health problems incident thereto" and "report his findings and recommendations for dealing with these conditions within 6 months."

The mandate from Congress was to devise the first survey in the United States that would measure nutritional health both on the basis of food consumption and physical and biochemical status, identify those at nutritional risk by specific location and report in a timely enough fashion to guarantee prompt remedial action.

Dr. Arnold Schaefer, chief of the Nutrition Program in the Public Health Service, who had administered U.S. nutrition surveys in developing countries, was placed in charge of what was to be the most ambitious program of nutrition evaluation to be undertaken in this country to date. Officials considered conducting a survey of 20 States, but narrowed it to 10: California, Kentucky, Louisiana, Massachusetts, Michigan, New York (with a special survey in New York City), South Carolina, Texas, Washington, and West Virginia. The survey would interview and physically examine 75,900 people in about 22,840 sample households, with the sampling concentrating on low-income areas, and cost about $5.4 million.

The survey ran into trouble almost immediately. In January 1968, $1.4 million was assured to get it started, but in April, the fiscal year 1968 funds were cut back to $750,000. Then in June an additional $975,000 was approved. The Government Accounting Office noted in a report on the Ten-State: "Thus, about 7 months after the approval of legislation requiring a comprehensive study, contracts had been awarded for surveys in 5 of the 10 States."

Nevertheless, in January 1969, Dr. Schaefer was able to tell the Select Committee that:

The preliminary data clearly indicates an alarming prevalence of those characteristics that are associated with under-nourished groups. Even though these findings come from a small sub-sample of the total National Nutrition Survey, it is unreasonable in an affluent society to discover such signs as those seen to date.

The official recognition and quantification of hunger in the United States by specific location had an almost immediate impact. In May 1969, President Nixon announced increased spending for food and nutrition programs and vowed "to put an end to hunger in America." But at the same time it was clear that administration officials did not like the activist posture of Dr. Schaefer, and steps were to be taken that would prevent the final results of the Ten-State from having any further impact on policy.

In *The Ten-State Nutrition Survey: An Analysis*, published in 1974, Dr. James Carter, project director, Maternal and Child Health/Family Planning, at Meharry Medical College and associate professor in nutrition and pediatrics at Vanderbilt School of Medicine, provides a history of the attack on the Ten-State.

> By May 1969, the same month as Nixon's speech, the potential impact of the Ten-State Nutrition Survey had been effectively contained. The decisions were made within the HEW bureaucracy. Containment necessitated several steps. First, the authority requested by Dr. Schaefer to expand the survey into four more states (which statistically would have made it a more completely representative national survey) was denied. In addition, Dr. Schaefer had requested funds both to enable the Nutrition Program to respond positively to the more than ten states which had requested technical assistance in inaugurating their own nutrition surveys and to establish regional nutrition centers which would provide monitoring and surveillance of the problems uncovered in specific populations and would help to establish food fortification guidelines and standards for various nutrients. This request was also denied. Finally, the scope of the Ten-State Survey was divided in half and shared between two agencies. Despite the objections of such groups as the Food and Nutrition Board of the National Academy of Science, the American Academy of Pediatrics, and the Food and Nutrition Council of the American Medical Association, responsibility for conducting future nutrition studies was assigned to the National Center for Health Statistics, an organization which has historically had no responsibility to report current information. This agency promptly expanded the national health survey then in progress to include nutritional data and renamed it the Health and Nutrition Examination Survey (HANES). Follow-up programs, if any, were to be assigned to the Center for Disease Control—CDC (then known as the Communicable Disease Center).

Before continuing with the Carter narrative, it is important to note that at this point in the Ten-State history, HEW Secretary Robert H. Finch was describing the dismantling of the Ten-State as an improvement in the monitoring system. He told the Select Committee in May 1969:

> We feel that we now know enough from the 10 State studies . . . to move into a new phase of activity . . . We now must move beyond the goal of simply determining whether and to what extent under-nutrition exists in this country. The next phases of activity must relate the findings of the survey to action programs and to establishing procedures for monitoring the national nutritional status.

In fact, however, steps were being taken to assure that neither the final report of the Ten-State or the HANES would provide prompt reporting on groups at nutritional risk, by specific location. Secretary Finch's statement described the development of "a State surveillance capacity to identify the nature and extent of the problem in terms of families and individuals," but as we will see, such a capacity is far from realization.

Returning to the Carter narrative:

> The budget for fiscal year 1970 does show a specific appropriation for the Nutrition Program. But the program's diminished status made whittling away at these funds by other agencies comparatively easy. For example, $2 million

60-843—75——4

was shifted to the HANES survey and over one half million dollars was used to construct a new biochemistry laboratory at CDC in Atlanta. Soon Dr. Schaefer was fighting to retain one-sixth of the amount appropriated so that he could finish the survey. By the end of May, one thing seemed perfectly clear: The Ten-State Survey would raise no embarrassing questions about the success of the war on hunger.

During the next year, the survey remained in relative obscurity. But in April 1970, Dr. Schaefer again appeared before the Select Committee. He testified that preliminary results of the survey showed that families of four with incomes of less than $1,650 a year were five times as likely to suffer serious malnutrition as families earning $6,600 a year and over. Interviewed by reporters later, he characterized existing Federal feeding programs as "damned ineffective." Schaefer's testimony was the cue for removing the survey from his control. In July 1970, the computer program of the survey was ordered to Atlanta, a move which involved transferring all the computer cards in trucks from Maryland to Georgia and transferring all the information to new cards which could be used on the CDC computer. All but one of the computer staff in Maryland refused the option to transfer. In January 1971, after the computer move was complete, the entire Nutrition Program was moved to Atlanta. Again, virtually the whole staff refused to transfer. In that same month, Dr. Schaefer resigned from the Nutrition Program. He was assigned to the Pan American Health Organization in March 1971.

"The final days of the Ten-State Survey were ridden with controversy. Vice President Agnew launched a scathing attack on the 1969 CBS documentary 'Hunger in America' as part of an offensive accusing hunger fighters of exaggerating the importance of malnutrition in this country. Almost simultaneously, Senator Hollings of South Carolina struck back. Accusing CDC of attempts to suppress the Survey, he released some of the survey's findings in a Senate speech. CDC strenuously denied Hollings' charges, claiming that the delay was due to difficulties in compiling the data. After the furor, the final report of the survey was released with almost no fanfare in the summer of 1972."

In 1973, Senator McGovern asked the Government Accounting Office to appraise the degree to which the Ten-State Survey met the mandate of Congress. GAO found that because of the sampling technique used, the survey "should be considered applicable to only those individuals examined," and the results should not be considered representative of the nutritional status of members of low-income households as a whole."

The GAO report noted:

This survey had administrative problems throughout its life, including:

a. funding delays.

b. organizational transfer of the Nutrition Program and loss of personnel.

c. data processing system changes, including use of different data recording forms.

The final report of the Ten-State was much different than that envisioned by Dr. Schaefer and required by Congress. The statistics were not reported by State, but were lumped together in averages of the States. In this way, Dr. Schaefer said in a recent interview, problems of special groups—migrant workers in Texas, blacks in South Carolina—were submerged. The Ten-State established the importance of physical and biochemical testing in nutritional surveillance, but it is also clear that:

1. The attempt by the Ten-State to provide timely, location-specific data on nutritional health, demanded of it by Congress, has not been repeated.

2. We continue to manage food assistance programs on a pre-Ten-State basis, using only consumption data, not biochemical or physical, as a means of setting dietary standards.

Surveys Being Planned

Plans are now being laid to begin the next HANES and HFCS. First we will consider the plans for HANES.

As noted in Dr. Carter's report, surveying begun by the Ten-State is being continued by HANES, under the direction of the Division of Health Examination Statistics of HEW's National Center for Health Statistics. Laboratory work for HANES is done by the Center for Disease Control. The first HANES began in 1971, and data gathering in the first half of the sample was completed in October 1972; gathering of the full sample was finished in June 1974. The second HANES cycle started with sample testing in Atlanta in November 1975, and the full survey is to begin in early 1976 and is to be completed in 2½ to 3 years. (A description of the goals and methodology of HANES II appears as Appendix K.)

Like the Ten-State, HANES gathers data on clinical health and food consumption, but it differs from the Ten-State in two important respects: (1) Data is gathered from a national sample and therefore does not identify special nutrition problems by location, making effective remedial action difficult if not impossible. (2) HANES results are not available until from 3 to 5 years after data collection begins, again hampering remedial action. (Ten-State data was provided in preliminary form less than a year after the survey began, and it is probable that the final report would have been issued far sooner had not administrative changes been ordered.)

Averaging

HANES II will sample 20,000 to 30,000 persons, covering ages 6 months to 74 years old, of various income levels. It will not, however, take samples in all States or even all geographic areas. HANES I drew sampes from 30 States and the District of Columbia and did not collect samples in much of the Midwest.

A report entitled *Preliminary Technology Assessment of U.S. Food, Nutrition and Agriculture Information System*, prepared for Congress' Office of Technology Assessment by the consultants Sidney M. Cantor Associates, found that neither HANES or the Household Food Consumption Survey provided information needed to permit prompt corrective action. It said:

> HANES and HFCS are designed to give overall views of nutrition status and family food consumption, respectively, on a national scale. The nutrition program official needs to be able to identify target groups and populations in specific geographic areas, to assign priorities according to specified criteria, and to have a simple, efficient approach to program evaluation as well.

In his testimony at the National Nutrition Policy hearings, Dr. David Coursin, director of research at St. Joseph's Hospital in Lancaster, Pennsylvania, said, like Dr. Schaefer, that highly averaged data means that certain vulnerable groups are missed.

> . . . there is concern that the present survey procedures provide averages that may inadvertently conceal the real extent of nutritional problems—particularly in groups at special risk.
>
> For example, we find that migrant workers are not adequately examined under these circumstances. In addition, populations, such as those on Indian reservations, continue to have major problems of inadequate nutrition.

The general study of a varied population also leads to a broader methodological approach. HANES is "painting with a broad brush biochemically," said an expert consulted in the preparation of this report. He and another nutritionist agreed that the survey should be concentrated on special groups, permitting tests to be designed to develop a deeper knowledge in specific areas.

This need for information about the status of high risk populations is expressed in the recommendations of the 1969 White House Conference. The report of Panel 1–3 said:

> . . . The need to search out nutrition and health needs of special areas and groups is acute. While there is merit in undertaking a national probability survey, the more urgent and immediate need is for the commitment of resources to high-risk populations and areas in order to define particular problems and responses. This goes directly to the determination of the extent and severity of hunger and malnutrition at its worst, availability of delivery of services, and the invitation of solutions.
>
> We recommend that the Department of Health, Education, and Welfare plan to carry out nutrition surveillance and monitoring aimed at selected target populations and areas, and develop techniques for continuing monitoring systems. Techniques need to be developed for monitoring diets and to identify problems before they become clinically evident.

The panel recommended that priority for this kind of study be given to: preschool children; expectant mothers; primary school children; and other low-income people, including Indians and migrant workers.

HANES officials acknowledge that there is a problem of generality with the survey, but they argue that it is intended to take a snap-shot of the Nation's nutritional health at a given point in time and that the problems of special groups can be studied in State programs such as those few now operating with the assistance of the Center for Disease Control.

Arthur J. McDowell, director of the Division of Health Examination Statistics said, however, that consideration has been given to concentrating on special groups in the third cycle of HANES. The surveyors want HANES II to follow the pattern of HANES I to permit identification of trends. This means that the investigations into the nutritional status of special groups would not begin until 1980 at the earliest and that data-gathering might not be completed until 1982 or 1983.

The CDC effort, currently extremely limited in terms of age group coverage and geography, offers no prospect for adequately filling the gap in knowledge about special groups, identified by the White House Conference, or of providing the kind of surveillance for all groups promised by Mr. Finch.

The CDC System

As pointed out earlier, the Center for Disease Control in Atlanta entered the field of nutrition surveillance awkwardly, as burial site for the Ten-State Survey. The data gathered in the survey was sent to CDC for compilation for the final Ten-State report, with the work being done as part of the Nutrition Program, which was also transferred from Washington.

A memo prepared in 1973 (Appendix L), shows the Nutrition Program involved in a wide variety of activities with a staff of 40 and a

budget for fiscal year 1973 of $2.4 million. The memo, written in May noted as its last item: "The Nutrition Program will be terminated June 30, 1973." An official familiar with the history of the Nutrition Program said, however, that it was effectively dismantled about a year before it was officially terminated, with only grants being handled in the final year.

The follow-up to the Ten-State Survey, promised by Secretary Finch, "a state surveillance capacity to identify the nature and extent of the (malnutrition) problem in terms of families and individuals," amounts to much less than his promise.

Scraping together funds from other projects, CDC developed a small program in which it is assisting about 10 States in gathering, compiling and analyzing height, weight, hematocrit and hemoglobin levels of low-income children involved in EPSDT screening. The work is done by what is known as the Nutrition Activity of the Bureau of Small Pox Eradication, with a staff of about eight professionals, full- and part-time. Among the sources of funding has been the venereal disease control program. In fiscal 1974, $184,000 was expended on the nutrition effort (Appendix M).

Data on growth, obesity and anemia in children, is sent to CDC by five States: Arizona, Kentucky, Louisiana, Tennessee and Washington (more limited work is being done with Oregon, Illinois, Florida and Montana). "The ultimate goal," said a CDC report in January 1975, "is to develop a simple computer system that can be exported to individual States or other geographical entities, which will then be able to handle their own data."

It is reported that HEW has approved a $1.9 million budget for CDC for surveillance in fiscal 1977, yet to be approved by the Office of Management and Budget, which would permit expansion of the program to 10 more States.

The CDC surveillance will continue to involve only children, not only because they are a high-risk group, but because nutritional problems are more easily identified and treated in children. In addition, existing maternal and infant nutrition programs insure that a high volume of low-income children will be tested. The CDC system, because it covers a limited age group, income group, and geographic area in no way begins to meet the need for specific data on high risk populations.

Time Lag

Another major problem with HANES, mentioned earlier, is the time lag in data gathering and reporting. As already noted, data gathering for HANES I took about 2 years and is expected to take 2½ to 3 years for HANES II. Consequently, the first report from HANES II is not likely until 1979.

In his testimony at the National Nutrition Policy hearings, Dr. Coursin said:

> The HANES survey does a masterful job at the present time within its frame of reference. On the other hand, this is a cyclical evaluation occurring over a 5- to 10-year period and is not flexible enough to provide current information in order to respond rapidly to national needs.

The time involved in data collection also makes it difficult, if not impossible, to draw any relationship between nutrition status and in-

come since the prices of food are likely to change considerably over a 2½- to 3-year period. The justification for HANES, submitted to the Office of Management and Budget, says:

> . . . Federal, State and local efforts in providing food stamps and food delivery programs, cost billions of dollars annually and affect millions of persons directly and indirectly. Many millions of dollars and other scarce resources are expended annually by the public and private sectors on programs; research on the complex relationship of health and nutrition variables; and the delivery of health services to under- and over-nourished persons. Food producers are, or will be, required to label the nutritional contents of their products so that an "informed" public can make more rational selection of foods consumed. Providing concrete indicators over time fulfills a data need provided by no other source on a national basis and at a relatively low incremental cost when combined with other target assessments proposed.

But because of the time lag, it is doubtful whether HANES can make an accurate measure of the effectiveness of Federal feeding programs or provide the data when it is needed for policy decisions.

In addition, the long time span of the survey permits evaluators to avoid northern climes during the winter with the mobile examination units used in the survey. The result of this is likely to be a failure of data to reflect seasonal differences in nutrient consumption and nutritional status which could have a significant impact on overall findings, possibly indicating better nutritional status than might be found if winter readings were to be taken.

Mr. McDowell realizes that there is a problem with time lag, and says the only cure is more money and personnel. About $4 million a year is spent on HANES and about half of this is used for the nutritional component. The survey currently employs 34 field workers operating in two mobile examination units. With twice as many units, Mr. McDowell says, the survey could be done in half the time.

More funds are also the answer to the problem of slow publication of reports and inaccessibility of data. The Cantor report for the Office of Technology Assessment said: "Little detailed analysis has been undertaken to determine the nature and extent of any relationships that might exist among different variables" and said that a statistician found the HANES reports "very hard to read."

The data gathering for the first phase of the first HANES was completed in October 1972, but preliminary biochemical and dietary findings were not published until January 1974. Part of the delay resulted from insufficient staff to process the data more quickly. Three statisticians were employed in assembling the preliminary dietary and biochemical report, and they completed their work in April 1973. Editing and printing occupied the rest of the time until publication. There are now only two statisticians working on the final dietary report. There is a total of five persons working on preparing the final reports of the first cycle of HANES, which are expected to be published in 1976.

Mr. McDowell acknowledged that his group does not have the time to fully exploit the mass of data collected. There are many inter-relationships that might be studied, he said, but "we can only scratch the surface." Attempting to partially remedy this, HANES data tapes are made available to outside researchers for a small fee.

Summing up, HANES does perform a useful function in reporting on general nutritional status, but it does not fill the important gap in our knowledge about the nutritional status in all areas of the country, particularly among high-risk groups, nor does it report in a timely fashion. The CDC system does not meet these needs either.

The Food Consumption Survey

The second national nutrition survey now being planned is the Agriculture Department's Household Food Consumption Survey. In this survey, interviewers ask respondents detailed questions about their diets, recording data that not only permits analyzing eating habits but also estimates of quantities of food eaten, permitting estimates of nutrients consumed.

The White House Conference recommended that these surveys be conducted at 5-year intervals, but it looks now as though the survey will not even be able to keep its 10-year schedule, partially because of politics. (A summary of the data to be reported and their expected uses appears as Appendix N.)

According to the original plan, the pilot survey for the next HFCS was to start in mid-1974 and then the basic survey was to get underway in January 1975. However, in July 1974, the Office of Management and Budget directed the Agricultural Research Service to conduct a study of alternative survey techniques. The contract for this exploratory study was not signed until June 1975, and the findings of the consultant are expected early in 1976.

If the consultant suggests only one survey technique, then a "dress rehearsal" for the survey might be started in mid-1976 with the actual survey starting in January 1977. The first results would then be available in the fall of 1977.

But, if the consultant recommends testing alternatives, then the survey would probably not begin until January 1978, with the first results produced in the fall of 1978, and the final report coming in April or May of 1979.

OMB's reasons for wanting a delay are reported by one official to be: budget considerations; doubt about the survey's methodology; and fear that the survey might produce discouraging data in the 1976 election year.

The HFCS will sample 15,000 households, developing a 3-day dietary history for individuals and a 7-day history for households. In addition, there will be sub-samples of 5,000 elderly, 5,000 receiving AFDC and 5,000 "working poor" who may or may not be using food stamps. The total sample size will be 30,000 households and containing about 90,000 individuals.

The survey data is to be gathered in one year's time, with a quarter of the sample population sampled in each quarter of the year. The Nation will be divided into four regions and representative samples will be gathered in each region. The survey will employ about 100 interviewers and is expected to cost about $5 million.

The HFCS, unlike HANES, is adequately funded to permit it to be timely, to gather information regionally and seasonally, and it will have a superior food consumption data gathering capacity, collecting 3-day and 1-week instead of 24-hour diet information as in HANES. As noted at the beginning of the section, however, the HFCS is seriously flawed.

In justification of the HFCS budget, the Subcommittee on Agriculture of the House Appropriations Committee was told in March 1975, by M. J. Pallansch, Acting Assistant Administrator, Marketing and Engineering Services, of the Agricultural Research Service, that:

Food consumption and dietary data are an essential element of the USDA's and other Federal research and educational programs in nutrition. These data are critical in identifying those groups of individuals who need more food or food of better nutritional quality.

Although the HFCS can tell what nutrients are being consumed and in this way can provide data on nutritional status, consumption data is only one half the picture. *Nutrition Assessment in Health Programs*, produced by the American Public Health Association under contract from HEW, points out:

Greatly limited food intake is obviously accompanied by sub-optimal nutrition status. However, slight differences in nutritional intake, or even apparent evidence of failure to meet "official" dietary recommendations, such as the National Academy of Science Food and Nutrition Board's Recommended Dietary Allowances (RDA), do not indicate the presence of malnutrition. There are, therefore, several reasons why dietary studies have their limitations. These include:

—Differences in nutritional requirements among individuals;

—So-called "conditioning" factors such as concurrent disease, genetic or enzyme defects which may interfere with or modify an individual's ingestion, absorption, storage, utilization, requirement, destruction or excretion of nutrients;

—The skill of the history-taker and the degree of cooperation and memory of the subject;

—Inadequacy of short-term studies that may not reflect total nutrient intake over longer periods.

Finally, it should be kept in mind that present knowledge of absolute nutritional requirements is rapidly evolving, that food tables are often incomplete and not necessary accurate, and that additional laboratory and clinical investigations are in order before nutritional deficiency can be determined with confidence.

Since the HFCS will study only dietary patterns and will not involve clinical or laboratory tests it will not be able to adequately measure actual nutritional status in its subjects and therefore will not be as useful as it should be in evaluating and setting standards for Federal programs.

Discussion

Does the United States have an effective system of nutrition monitoring? The answer must be: No.

Before discussing what such a system might involve, it is necessary to make a distinction between different kinds of nutritional assessment. HEW describes periodic nutritional assessment, such as HANES and the HFCS as nutrition *surveys*. Continuing examination of nutritional status, such as that performed by the few States working with CDC is described as *surveillance*. An adequate system provides both for surveys and surveillance.

Surveys like the HANES and HFCS are intended to periodically provide general baseline data. HEW officials describe the CDC system as having the potential to meet the need for surveillance, continuing location-specific monitoring of nutritional status that would supply data on which to base action programs.

But, as we have seen, the general surveys are seriously flawed, and the CDC is operating in less than a dozen States and is only monitoring limited nutritional indicators in children. There is no surveillance of the adult population in this system.

In addition, experts have recommended that there be created a means of continuously monitoring nutrition status nationally, based on a variety of indicators, including food price changes and reports from third-party insurers.

The internal HEW report, mentioned in previous sections, entitled *What Should be the Department's Role in Nutrition and Diet Pertaining to Health?*, prepared in 1971, advocated a surveillance system that would "continuously collect, analyze and distribute nutritionally-related data now being obtained by all Federal nutrition programs" research and service projects, and by national surveys.

A follow-up memo to the report, written in May 1972, said:

> The information collected by the National Center for Health Statistics, and accumulated during the course of the Ten-State Nutrition Survey, is exceedingly valuable in providing information on the nutritional status of selected segments of a broad cross-section of the U.S. population.
>
> The HANES study is a specific time study, using a data collection system and sample design developed for only the one purpose. It is costly, but can be valuable as a major (and perhaps sole) means of establishing baseline data. However, neither the Ten-State Nutrition Survey nor the National Center for Health Statistics Survey constitute an operational surveillance system.
>
> What is required is an operational system that makes use of many other sources of health information that can, if properly evaluated and combined with data from the specific nutrition studies provide the needed continuing guidance for program planning and change. If properly established, most of the basic information is collected as part of other health systems.
>
> Such a surveillance system should be engineered so that it is an acceptable stimulus to remedial action once the mechanism shows that remedies should be applied. What is needed is a system which covers the population, particularly the sub-population groups at particular risks, tests for the adequacy or inadequacy of nutritional status in relationship to the most critical components of human nutrition, identifies and characterizes the populations suffering from nutritional inadequacies which have genuine and significant implications for the health of individuals making up the population, and identified changes which result from the institution of remedial action.

The basic report envisioned a system that would produce monthly or bi-monthly reports on "the nutrition status of high-risk populations, incidence of related disease and socio-economic correlations... early detection and warning of critical nutritional profiles would be provided for specific populations and geographic areas." The reports would be developed from a wide range of sources, including: random sampling of food production, processing and sales data; vital statistics from State health departments; data from third-party insurers and from hospitals and health clinics.

The need for short-term as well as long-term reporting of nutritional status was recognized also by the Select Committee's panel on Nutrition and Government.

The panel recommended that food purchase patterns in representative areas be monitored and changes reported on a month-to-month basis. For longer term surveillance, the panel recommended the establishment of local, State or regional Nutrition Centers with clinical, biochemical and dietary competence. Improved monitoring of nutrient composition of food and food safety is also needed, the panel said.

Based on an analysis of past and current nutrition assessment, and expert opinion, we find that an adequate system for nutrition monitoring should include:

1. Nutrition surveys conducted at at least 5-year intervals to provide general baseline data on the general population and special high-risk groups.

2. Continuous nutrition surveillance of high risk groups at the State level and a State capacity to sample its entire population periodically.

3. A continuous national monitoring, based not only on nutrition surveys and surveillance but on other indicators of nutritional health, that would provide reports on a monthly or bi-monthly basis.

A Plan for Nutritional Monitoring

When Arnold Schaefer was director of the HEW Nutrition Program he suggested that USDA and HEW join forces in nutrition assessment, with HEW developing a nutritional health component for the HFCS.

Under this plan, the HFCS performs its currently assigned task plus the work being done now by HANES. This would meet the aforementioned monitoring requirement for base-line data on the general population. This arrangement would permit the combination of the best aspects of both surveys, the food consumption data of the HFCS, based on 3-day and 7-day estimates of food intake, and the physical and biomedical evaluation of HANES. It would mean that the HFCS, which might be renamed, would be able to measure not only food consumption but also its affect, allowing it to be used more reliably for setting standards for food assistance programs and for evaluating them.

In addition, it would permit basic nutritional health data to be gathered in a year's time, rather than over a 2½- or 3-year period and to be reported more promptly. It would not be necessary for the medical component to sample as large a population as the consumption component, perhaps 30,000 of the 90,000 planned for the HFCS. This would be a manageable size and approximate the sample currently studied by HANES.

With the need for general nutrition assessment being performed by the new combined survey, the needs of special groups could be examined by HANES II, a project that would, under current plans, not get underway until 1980 at least. By narrowing the scope of HANES to cover certain groups, more specific testing could be used and there would be a greater opportunity for experimenting with various testing methodology. Current methodology is considered too complicated and expensive, and there is a need for research in this area.

The combined survey and the new HANES would meet the need for periodic examinations and should be conducted at no greater than 5-year intervals.

To meet the need for continuing surveillance of nutritional health, the CDC system should be expanded to cover all States. This would mean that over a period of no more than 5 years, each State would be given the capacity to continuously monitor in its clinics and hospitals the nutritional status of high risk populations, children and adult, as well as the capacity to do random sampling of the entire State population periodically, perhaps at 2- or 3-year intervals. This data would be evaluated at the State level and sent to CDC or another central point for analysis of national conditions.

The CDC system could make use of the new HFCS–HANES combined survey and the HANES special groups survey in studying local populations as well as adopting new testing techniques developed in the national surveys.

The plan just outlined provides for gathering of national, baseline data and continuous monitoring of special groups. A third component, needed to measure short-term changes in nutritional health on a national basis, would gather data from a variety of sources, food processors and retailers, hospitals, third-party insurers and the State surveillance system and publish monthly or bi-monthly reports. These would estimate changes in the potential for the population achieving adequate nutrition, changes in nutritional health, and local developments that are of national interest.

Recommendations

1. That Congress require HEW to work with USDA to develop a medical evaluation component to the Household Food Consumption Survey that would study physical and biochemical indicators of nutritional health in the same size sample population now covered by HANES.

2. That Congress direct that the next HFCS begin no later than January 1, 1977; and that these surveys be conducted at 5-year intervals thereafter.

3. That Congress direct that the second cycle of HANES, scheduled to begin early in 1976, be delayed for a year to permit the survey to be redirected to the study of the nutritional problems of groups at high nutritional risk; and that the HANES staff be increased to permit data gathering to be completed within 12 months and issuance of reports within 6 months of the completion of data gathering.

4. That Congress direct that the Center for Disease Control devise a plan for the expansion of a nutrition surveillance system throughout the United States over the next 5 years and that the system have the capacity for continuous nutrition surveillance of high-risk groups of all ages as well as the capacity to periodically sample the entire State population at least at 5-year intervals.

5. That Congress require HEW and USDA to jointly determine which indicators can best be used to monitor nationally the nutritional health of the general population and special high-risk groups on a monthly or bi-monthly basis and that recommendations on establishing such a monitoring scheme be submitted by December 31, 1976. The indicators might include but would not be limited to: food prices; data from third-party insurers; data from State surveillance; food production, processing and retailing data and data from health clinics and hospitals.

6. That Congress require HEW to initiate studies aimed at improving techniques for physical and biochemical nutrition evaluation and make an annual report to Congress on progress.

7. That Congress require USDA to study food consumption survey techniques and adequacy of data on food composition, food fortification and food additives with recommendations being made to Congress by June 30, 1976, on action needed to ensure the next Household Food Consumption Survey develops nutrient consumption data of the highest accuracy possible.

Chapter III

CONTROL OF NUTRITION POLICY

We recommend that presently diffused Federal machinery for dealing in a piecemeal way with food and nutrition as they relate to health be administered hereafter as a total system under clear policy guidance, accountability, program management, and independent mechanisms for evaluation. Balkanization of responsibilities and authorities constitute a serious barrier to a concerted attack on hunger and malnutrition.—From the 1969 White House Conference on Food, Nutrition and Health.

In 1945, the Bureau of the Budget recommended that the coordination and cooperation that had existed in nutrition policy during the war be continued in peacetime.

Among its recommendations were:

—Arrangements should be made for continuing the coordination of Federal agencies on a long-term basis.

—Federal agencies interested in the effectiveness of Federal-State health and education programs, ought to encourage the development of State interagency coordination committees.

—The need for coordinating nutrition programs of the bureaus and offices remains after the expiration of the War Order assigning such responsibility to the War Food Administrator. Peacetime responsibility for leadership should be clearly assigned by Executive Action.

—The Federal Interagency Committee, made up of representatives of each of the Federal agencies having field programs should be retained because of its long term possibilities and should form several subcommittees.

—State agency coordination is desirable and ought to be continued, probably by a State interagency coordinating committee. Such committee should utilize the subcommittees and designate an individual to serve as secretary or staff assistant.

—Federal bureaus and offices should encourage continued experimentation by the State agencies with various methods for developing the community programs designed to raise nutritional levels.

—Some suitable arrangement is needed whereby national food industry advertisers can submit their advertising, preferably on a voluntary basis, to a central point in the Federal Government for clearance.

—Federal bureaus and offices should contract for National Research Council's services, as needed, on a specified project by project basis.

But, without the imminent threat to survival presented by war, the pressure for cooperation disappeared and control of nutrition policy passed back to the hands of traditional market forces. In 1969 the White House Conference, coming immediately after the first reporting of significant malnutrition by the Ten-State Survey, called again, with greater urgency than the Bureau of the Budget, for coordinated action in nutrition:

Interdepartmental coordination of policies and resources of the executive departments and agencies is essential if there is to be agreement on objectives and priorities for Federal action in the field of nutrition and health. While many departments and agencies can and should be operationally involved in programs and activities to improve nutrition and health, there is a need to focus policy perspectives and overall responsibility at the Cabinet level. Councils and committees

chaired by an official of Cabinet rank are not the answer; they lack authority and become bureaucratized.

A clear presidential delegation of prime policy leadership within the executive branch, equated with the role of the Secretary of State in the field of foreign affairs, will be necessary to establish a strong center of policy coordination for food, nutrition and health.

We recommend that the Secretary of Health, Education and Welfare be assigned by Presidential Executive Order governmentwide policy and coordinating responsibilities for food and nutrition as they relate to health. We recommend, moreover, the early transfer of the food stamp and food distribution programs to the Department of Health, Education and Welfare.

A report on the history of national nutrition policy between 1917 and 1974, prepared by HEW for the Select Committee's national nutrition policy hearings (Appendix O), from which the Bureau of the Budget recommendations were quoted, said in its summary:

As one reflects upon the recommendations relative to nutrition made by some of the conferences and groups convened for well over half a century, one becomes aware of their striking similarity and recurring themes.

Roadblocks to Change

The continuing failure to institutionalize a means of coordinating nutrition policy can be attributed to lack of interest or leadership, but there is evidence that a far greater roadblock has been the awareness that coordinating a policy that would bring safe, healthful food to all Americans in adequate amounts would implicitly involve fundamental changes in the food production and processing industry, the Nation's largest industry, and in basic economic policy.

Nowhere are the basic preconditions for improved nutrition clearer than in the experience of England during World War II, a study by A. H. J. Baines and D. F. Hollingsworth, *Diets of Working Class Families with Children Before and After the Second World War*, in the *Nutrition Abstracts and Review* in 1963, summarizes fundamental changes occurring in the British economy and food policy that permitted an actual improvement in nutritional health at a time when imported food tonnage was cut in half:

There were many reasons for this (improvement of nutritional health): attainment of full employment, reduction of class disparity, and deliberate direction of food policy towards improvement of the diet of the nutritionally vulnerable groups. One result of food control was perhaps not wholly foreseen. To take one's rations in full was a legal right which became almost a duty. Hence rationing first increased and then maintained the consumption of several basic foods in the larger and poorer families, while restraining it in others. Those constraints ceased to operate in 1954, but much of the gain was permanent.

By the end of the war the national diet provided more of all nutrients estimated, except fat and vitamin A, than that before the war. The greatest changes were increases in supplies of calcium, brought about by increased supplies of liquid and processed milk and by addition of chalk to flour, and in supplies of vitamins of the B complex, caused mainly by increase of the extraction rate of flour. The fortification of all domestic margarine with vitamins A and D (some brands had been fortified as early as 1927) helped to counteract reduction of supplies of butter and eggs. Other important measures were provision of cod liver oil and orange juice as well as milk at reduced price for expectant mothers and young children, expansion of the school meals service and encouragement of communal meals for industrial and other workers.

The preliminary findings of the Ten-State Survey, released early in 1969, made it clear to students of nutritional health that the solutions

to their concerns extended beyond food research and nutrition counseling and education. The White House Conference report said:

Nutritional insufficiency and income insufficiency are inseparable problems. Within the present food distribution system in the United States adequate nutrition is impossible without adequate income, although income alone cannot guarantee superior nutrition. Experience and evidence indicate that when income is limited, the family unit may feel that certain priorities stand higher than the food budget. So any food program, to succeed, must consider the other demands on the family budget. Any long-range programs developed to eliminate hunger and malnutrition must include provisions to insure family income adequate to all basic needs. Also it is socially and economically undesirable to create a permanent food delivery system, operating outside the market, for the poor alone.

The Panel concludes that any nutrition programs sponsored by the Federal or other governmental units must insure a flow of dollars for the family rather than a flow of food. Only in this way can the twin goals of human dignity and adequate nutrition be met.

RECOMMENDATION

A National program for adequate income maintenance must be developed at once to replace both the present welfare and food distribution programs."

Planning must begin by January 1, 1970.

The President's budget for fiscal year 1971 must reflect a commitment to change by identifying the dollars to be used for income maintenance.

Appropriations for an income maintenancy program must be sufficient to reach one-half of the annual dollar goal per family by fiscal year 1972.

The remaining dollars for this program must be budgeted in fiscal year 1973.

The accomplishment of these steps will virtually eliminate the need for special kinds of food distribution programs for families or for special groups within families. Until this target date (July 1, 1972), every effort must be made to insure that all existing Federal food distribution programs be coordinated and modified and simplified so that they reach all those in need.

The dollar value of an adequate income for a family of four shall be no less than the lowest subsistence budget estimated by the Bureau of Labor Statistics which was $5,915 in 1967. The dollar value must be continually adjusted to fluctuations in the consumer price index as identified by the Bureau of Labor Statistics.

This thrust of the Conference recommendations, with specifics on a base income, was not appreciated by the Administration, which at the time was pressing for acceptance of its Family Assistance Plan, a plan that would not have provided the money recommended by the Conference. In *The Politics of A Guaranteed Income*, Daniel P. Moynihan, an architect of the Administration's proposal, said:

The mood of the (White House) conference was radical and hostile to the Administration. Here NWRO (National Welfare Rights Organization) raised the standard of "$5,500 or Fight," and found in Senator Eugene J. McCarthy a sympathizer and sponsor.

The Administration, acting to stifle anything that would promote the growth of the food stamp program or undermine the FAP position, moved against the Ten-State, as reported earlier. Dr. Arnold Schaefer, director of the survey and out-spoken in his advocacy for action to eliminate hunger, was forced to resign. Technical changes were made to delay the release of the final Ten-State findings and to assure that the final statistics would be so general as to hide groups at high nutritional risk. There is evidence that this experience with national nutrition assessment, touching on basic agricultural and economic policy, was a key factor in HEW's pulling back from nutrition in general and particularly from any activity that might again threaten Administration positions.

HEW Recommendations

Dr. Nathan Smith, a professor of pediatrics at the University of Washington who had participated in the Ten-State, was brought to HEW in the summer of 1970 as a special assistant to the Secretary, first Robert Finch, then Elliot Richardson, responsible for devising a new nutrition program. Dr. Smith had no budget and no control over any program. It is possible that he was brought in to allow the Department to claim an interest in nutrition and cover the dismantling of the Ten-State Survey, which nearly coincided with Dr. Smith's appointment.

Dr. Smith presented a proposal to Secretary Richardson which included an initiative in surveillance of high-risk groups. It was politely received and politely rejected. Dr. Smith left after 10 months. He had announced when he arrived that he would stay only a year, and this may have limited his effectiveness. An official familiar with the period said there was "not enough steam up, enough interest."

No trace of Dr. Smith's proposal could be found by HEW officials asked to locate it in the preparation of this report.

Shortly after the White House Conference, a small group of HEW officials began meeting informally to consider what direction the Department should take in nutrition. In June 1971, the group, headed by Dr. Ogden C. Johnson, then director of the Division of Nutrition in the Food and Drug Administration, was asked to "undertake a study of the role of the Department in nutrition and diet as related to health." This was to be used in Department planning for the period 1973–77.

In September 1971, the group produced a report, quoted several times earlier in this report, titled *What Should be the Department's Role in Nutrition and Diet Pertaining to Health?* (Appendix D). The report is the most thorough examination of nutrition problems and possible solutions produced by HEW since then.

Among the problems cited in the report were:

—Only limited requirements for nutrition services in health programs.
—Inadequate nutritional counseling manpower.
—Need for third-party payment for nutrition services.
—Need to examine the changing character of food buying patterns and implications for fortification.
—Insufficient knowledge about the relationships between diet and heart disease, nutritional status and learning and nutrient requirements during periods of stress.
—Need to gear nutrition education to behavorial patterns.

The report says repeatedly that the Department must act to ensure that those who cannot afford an adequate diet are given support. In relation to the food supply, the report suggests that: "If most processed foods were required to contain a minimal baseline nutrient level, even those selecting a rather poor, restricted diet would receive basic nutrient requirements." Such a change could be accomplished, it said, through the Food and Drug Administration establishing guidelines and regulations that would not only permit but "in fact require, that the nutritional quality of food be raised when this will benefit the population."

To begin coping with nutrition problems, the report recommended that HEW:

1. Develop a nutrition surveillance system. ("Most of the alternatives proposed later in this report will prove effective only if a nutrition surveillance system can be organized.")
2. Develop a Departmental policy on nutrition and health. ("It would be advantageous to have a stated nutrition health policy that could be used not only within the Department, but would also serve to guide other Federal and State agencies in their consideration of programs that have direct or indirect influence on the nutritional health of individuals and population groups.")
3. Establish a nutrition coordinating committe within the Department. ("The committee . . . feels that the fragmentation of effort, in part due to the lack of a coordinating group, has led to duplication, and loss of awareness by program staffs of related actions in nutrition and health.")

The report was circulated in the department, but no action was taken. As noted earlier in this report, most conditions described by the Johnson committee in 1971 exist today. The report was "put aside" said a person familiar with its work, because there was no interest in the upper ranks. As an informal, internal document, he said, it could be easily ignored.

The next attempt to organize nutritional health activities within HEW seems to have been started by chance. Secretary Richardson read an article on the Op-Ed page of the June 14, 1972 *New York Times*, written by Henry J. Heinz 2nd, chairman of the H. J. Heinz Company. Entitled *Nutrition Illiteracy*, it began:

> We are a nation of nutritional illiterates. Despite a wealth of scientific knowledge of nutrition, too many of us do not know what a balanced diet is, and are ignorant of the essential nutrients we need and the foods that contain them. We have an abundant food supply, yet our eating habits are deteriorating. And it is not just the poor who are affected, though lower-income families undoubtedly fair less well nutritionally than the average.

Mr. Heinz concluded:

> Nutrition education must become a priority concern of state and local governments and all schools. The food and beverage industries should support this effort as well as follow policies of scrupulous accuracy in advertising and labelling. In addition, they can contribute to better nutrition by following sound principles of nutrition in the formulation of improved foods.

A memo (Appendix P) was then circulated to the Assistant Secretaries for Planning and Evaluation, Legislation and Education by Richardson's assistant executive secretary, saying that the Secretary had read the article and had asked (in pen on the margin of the article):

"Is this something we should consider?"

The response from the Assistant Secretary for Planning and Evaluation (Appendix Q) contained a suggestion that there be established a nutrition coordinating committee within the Department, a suggestion based in part at least on familiarity by a staff member with the earlier proposals of the Johnson panel. The suggestion was approved by Richardson (Appendix R) who wrote: "Let's do it," on the margin of the memo from Planning. Another memo from Planning (Appendix S) suggested that the Assistant Secretary for Health be made responsible for the committee's work, and the Secretary approved this suggestion in a memo dated October 24, 1972 (Appendix T). A formal charter setting up the committee for a two-year period was signed in April 1973 (Appendix U).

60-343—75——5

The annual report of the coordinating committee for fiscal year 1974 (Appendix V) shows that its first year of work involved primarily the gathering of information on nutrition activities within the department and the drafting of a nutrition policy statement (Appendix W).

The policy statement was drafted by Dr. Johnson, who was appointed chairman of the coordinating committee in July 1973. The statement was written after the sales of Soviet grain in 1972 and 1973, which resulted in radical food price increases, and this may have been a factor in the willingness of Dr. Johnson to stake out a claim for nutritional health in dangerous areas of agricultural and economic policy.

In capital letters, the policy statement proclaimed:

"ALL CITIZENS SHALL HAVE ACCESS TO AN ADEQUATE AND SAFE SUPPLY OF FOOD AND ABILITY TO IDENTIFY, SELECT AND PREPARE AN OPTIMAL DIET, IRRESPECTIVE OF SOCIAL OR ECONOMIC STATUS."

The statement then goes on to say, in the section on food supply:

The production and processing of food must be given the highest priority by the government as well as by the private sector. Those agencies responsible for food must constantly review the supply of food, its safety and its cost, to assure that food adequate in quality and quantity is available to meet nutrition needs.

Furthermore, the draft said, to assure adequate diets, HEW should be involved in "provision of financial resources or in some cases, food resources." And it said:

The Department should assist in eliminating inequities which penalize many families in achieving good nutrition, such as recognizing the higher cost of living in some geographic areas and the variations often found in wages, costs of food and quality and quantity of food markets.

In the area of nutritional surveillance, it said in part:

Those segments of the population whose diet is inadequate, excessive, or inappropriate for their health status need to be identified in order to better target program funds and services to their needs.

The policy statement was not adopted. There were a variety of reasons, not the least of them the change in personnel at various levels. "It was a little hard to get any direction" from the Secretary, said a former official, in part because the Secretaries changed, as did their representatives in dealing with the committee.

But another key factor in the rejection of the policy statement was its assumption of responsibility in areas, such as food assistance and agriculture policy, that had traditionally been the preserve of the Department of Agriculture or economic policy makers.

Dr. Johnson left HEW in early 1974, and Dr. Myron Mehlman became the committee's chairman. The work of the committee continued in an irregular fashion, with the drafting of a policy statement still one of its principal tasks. A version drafted in November 1974 (Appendix X) follows the general principles of the Johnson draft but withdraws from direct conflict with the Department of Agriculture in food policy, saying:

The Department of Health, Education and Welfare acknowledges the fact that authorities in respect to many aspects of the food supply are shared with the United States Department of Agriculture, the Environmental Protection Agency, and other Federal agencies and State and local governments. Since USDA has the Federal responsibility for the supply of food, then DHEW adopts the role of advocate of the "demand" side of the equation, demand as to sufficiency, variety, quality and reasonableness of costs.

The draft did, however, take a strong position for economic equity as a prerequisite to equal access to adequate diets, endorsing "the most sound and equitable means of income maintenance," and in its last section on international nutrition problems it ventured back into food policy, saying:

. . . a given weight of certain grains meets the protein needs of more people than an equivalent weight of animal protein. Per se, this observation does not necessarily dictate a major shift in dietary practices by Americans to conserve grain for the less sufficient nations, although this might be a compassionable act. But, if it were demonstrated that such a shift would be actually beneficial to American health, then evaluation of such a move would be worthy of serious consideration.

Early in 1975, the job of drafting a statement for the Department was taken over by officials under the Assistant Secretary for Health but not members of the committee. One of them was Dr. Charles U. Lowe, Special Assistant to the Assistant Secretary for Health, Office of Child Health Affairs, a member of the Johnson panel in 1971.

The new statement, *Health Aspects of Nutrition* (Appendix Y), was adopted in February 1975 as the Department's position on nutrition. The statement is similar in tone to the Johnson draft statement, establishing in HEW the responsibility for examining policies of other Departments in so far as they relate to nutritional health.

The statement says: "A high priority is to ensure that every American has access to an adequate supply of wholesome food which provides all nutrients known to be essential to maintain and improve health and vitality." And it says:

Special attention shall be directed at the relationship between sound nutrition, the availability and cost of food, and policies of the Department of Agriculture.

In its discussion of biomedical research, the statement says:

Research shall also be directed towards helping to resolve the controversy concerning true human protein needs and the feasibility of relying more heavily on grain as a source of protein. This not only provides an opportunity for possible improvement in health, but also offers an opportunity for more equitable and improved grain utilization in the face of increasing world demand for food.

The statement also calls for thorough nutritional assessment:

This (nutritional monitoring) shall be accomplished through general surveillance activities at the national level, and through local surveys of high-risk populations. Such monitoring shall include the identification and full assessment of the extent and location of nutritional problems according to region, income, food availability, ethnicity, and sex . . .

Taken as a whole, the statement reflects a desire expressed by several officials working for Assistant Secretary Cooper to expand HEW's role in food policy decision-making as it relates to health, particularly into areas that have traditionally been the province of the Department of Agriculture.

HEW would like its Maternal and Child Health nutrition guidelines used in the feeding programs administered by USDA. In broader policy, HEW officials want the department to have a say in

grain sale agreements since massive sales, such as those to the Soviet Union, materially affect food prices in the United States and consequently reduce the value of benefits to low-income people. HEW also wants to be heard on the health implications of agricultural practices. Dr. Cooper recently sent a letter to the National Academy of Sciences, for example, asking that the following questions be included for consideration in a food policy study being conducted at the request of President Ford.

—What are the advantages and maximum health benefits of cereal grains—over animal products—as a dominant source of protein and calories in the human diet? What are the implications of efforts to grass-fed rather than grain-fed cattle for human consumption? What is the time-frame for shifting to predominantly grass-fed cattle in this country; what would be the environmental impact and socio-economic consequence of such a change? Is there a potential role for the Federal Government in providing incentives to facilitate a major switch in the way we allocate grain and raise livestock?

—What are the mechanisms for change and by what methods can we supplement improved educational activities to produce desired alterations in the diet and eating habits of Americans? Must we look forward to the kinds of dismal results that we have experienced—despite nation-wide educational efforts—in our current anti-smoking campaign?"

These and other questions in the memo have not been included in the study, according to an HEW official, but they are an indication that some officials in the department have a sense of the role for health in food policy envisioned by the White House Conference and the Johnson panel in 1971.

There is, however, no organizational mechanism in HEW for realizing this vision. The coordinating committee, plagued by lack of budget, changing personnel and bureaucratic infighting, did not produce work satisfactory to Dr. Cooper and he did not renew its charter when it expired in April 1975 (Appendix Z). He asked his Office of Program Implementation to recommend ways of dealing with nutrition policy, and a report may be made in December 1975, or early in 1976. Currently the Office is receiving from HEW's various branches descriptions of their work in nutrition, repeating an operation conducted by the coordinating committee.

One option under consideration for the management of nutrition policy is the creation of an Office of Nutrition to provide a special focus and full-time effort. This would cost money, however, and officials expect that, given the Administration's history in nutrition, an option will be selected that costs nothing, such as recreation of a coordinating committee. (There is currently a nutrition coordinating committee in the National Institutes of Health, but this does not affect department-wide policy.)

Even if an Office of Nutrition were created it is doubtful that it would have any real impact unless it is given power from the top of the Department, and the Department must be given power in the area of food policy by the President. The history of the Ten-State Survey alone shows that unless the President and those concerned with food policy in the Cabinet are prepared to give health a predominant place in food and economic policy it is impossible to effectively carryout programs that even attempt to examine the state of the Nation's nutritional health, much less take steps to improve it.

One HEW official who struggled with drafting the departmental policy statement pointed out: "You can't . . . build policy from the bottom up . . . You've got to have some decisions on the big pieces."

Discussion

The history of the management of nutrition policy in the Department of Health, Education, and Welfare over the last 8 years is characterized by conscious neglect. Clearly there has been resistance to taking even the smallest action that would support spending for food assistance programs or would in any way threaten the existing patterns of trade in the food industry.

The experience with the Ten-State Nutrition Survey and attempts to organize nutrition policy within HEW since the White House Conference show that effective steps to improve the nutritional health of the Nation can be taken only as the President and his Cabinet give health the highest priority in food policy and in related aspects of general economic policy.

In December 1974, President Ford asked the help of the National Academy of Sciences "in a major effort to lessen the grim prospect that future generations of peoples around the world will be confronted with chronic shortages of food and with the debilitating effects of malnutrition." As part of the Academy's initial response to the Ford request, published in November 1975, the Academy's Food and Nutrition Board submitted a report which said:

> The urgency and complexity of the situation set forth in the President's letter demand that prompt action be taken to establish an effective mechanism within the Federal government to bring focus and coherence to U.S. food and nutrition policies and programs. This mechanism should include both domestic and international dimensions and should recognize the intimate relationships among food, agriculture, and health systems. Accordingly, serious consideration should be given to the formation of a Federal food and nutrition policy board, a council of appropriate departmental Secretaries, or other comparable body with adequate authority to bring about coordination of Federal research agencies.
>
> Whatever the exact form such device might take, the key need is for essential governmental focus on nutrition as it relates to food supply and problems of population health. Such a focus is essential if coordinated action and research efforts on these important problems are to occur on the needed time scale. In the past, whereas the medical sciences have clearly been in the province of DHEW and the agricultural sciences clearly the responsibility of USDA, nutrition—with its important relationship to each of these applied branches of biology—has belonged unequivocally to neither. The unhappy consequences of this situation have been noted repeatedly.

The report recommends that responsibility for leadership and coordination of nutrition policy be placed outside USDA and HEW in a nutrition policy board. Such a board, composed of the Secretaries involved in food policy would have the power to effect cooperation among the Departments.

In addition, it is necessary to create a post within HEW that will manage the Department's nutrition, with power over the nutrition budget. This office would also coordinate HEW's nutrition activities with those of other Departments. Finally there is a need to create in HEW a staff that will gauge the health implications of various agricultural policies and practices and general economic policy as it pertains to nutritional health.

RECOMMENDATIONS

1. That Congress establish a food and nutrition policy board in the Executive Office of the President, composed at least of the Secretaries of Agriculture, State, and Health, Education and Welfare, to advise the President, coordinate inter-Departmental nutrition activities, and to prepare, as part of the State of the Union presentation, an annual food and nutrition plan for the Nation.

2. That Congress establish in HEW an Assistant Secretary for Nutrition and that all funds for nutrition activities within HEW be administered by the Assistant Secretary for Nutrition.

3. That Congress establish within HEW an Office of Nutritional Health Evaluation that would be responsible for evaluating the nutritional health implicatoins, domestically and internationally, of U.S. agricultural practices and policies and to advise on the impact of changes in domestic economic policies on nutritional health.

4. That Congress require the Secretary of Health, Education and Welfare to provide a report by June 30, 1976, on the Department's plans in the area of nutrition for the next two years with special attention to action recommended by the 1971 report *What Should Be the Department's Role in Nutrition and Diet Pertaining to Health?*

BIBLIOGRAPHY

Agricultural Research Service, Department of Agriculture. *Dietary Levels of Households in the United States, Spring 1965. Household Food Consumption Survey 1965–66 Report No. 6.* July 1969.

Agriculture Subcommittee of the Committee on Appropriations, House of Repesentatives. *Agriculture-Environmental and Consumer Protection Appropriations for 1975, hearings, Part 4: Agricultural Programs.* Government Printing Office. 1974.

Baines, A. H. J. and Hollingsworth, D. F. *Diets of Working Class Families with Children Before and After the Second World War.* Nutrition Abstracts and Reviews. Vol. 33, 1963. The University Press, Aberdeen, England.

Bodley, M. A.; McClinton, E. Patricia; Nap, Carole. *Survey of Therapeutic Counselling Services for the Non-Hospital Patient.* The Journal of the Canadian Dietetic Association, Vol. 35, January 1975. Toronto.

Butterworth, C. E., Jr. *The Dimensions of Clinical Nutrition.* American Journal of Clinical Nutrition, 28: September 1975.

Butterworth, C. E., Jr. *The Skeleton in the Hospital Closet.* Nutrition Today. March/April 1974.

Butterworth, C. E., Jr.; Blackburn, George C. *Malnutrition in Hospitals.* Nutrition Today. March/April 1975.

Cantor, Sidney M., Associates. *Preliminary Technology Assessment of U.S. Food, Nutrition and Agricultural Information Systems.* Office of Technology Assessment. November 1974.

Carter, James. *The Ten-State Nutrition Survey: An Analysis.* Southern Regional Council. October 1974.

Center for Disease Control. *Nutrition Surveillance.* January 1975.

Center for Disease Control. *Nutrition Surveillance.* April 1975.

Christakis, George (Editor). *Nutritional Assessment in Health Programs.* American Public Health Association. November 1973.

Committee on Ways and Means, House of Representatives. *National Health Insurance hearings, Volume 8 of 9, July 1, 2, and 9, 1974.* Government Printing Office.

Council on Foods and Nutrition, American Medical Association. *Conference on Guidelines for Nutritional Education in Medical Schools and Postdoctoral Training Programs, June 25–27, 1972.* American Medical Association. 1972.

Department of Health, Education, and Welfare. *Forward Plan for Health, FY 1977–81.* June 1975.

Department of Health, Education, and Welfare. *Health Resources Statistics 1974.* Health Resources Administration, National Center of Health Statistics. 1974.

Department of Health, Education, and Welfare. *Preliminary Findings of the First Health and Nutrition Examination Survey, United States, 1971–72: Anthropometric and Clinical Findings.* Health Resources Administration, National Center for Health Statistics. April 1975.

Department of Health, Education, and Welfare. *Preliminary Findings of the First Health and Nutrition Examination Survey, United States, 1971–72: Dietary Intake and Biochemical Findings.* Health Resources Administration, National Center for Health Statistics. January 1974.

Department of Health, Education, and Welfare. *Ten-State Nutrition Survey, 1968–1970, Volume I–IV.* Health Services and Mental Health Administration, Center for Disease Control. 1972.

Department of Health, Education, and Welfare. *Health Manpower in Hospitals.* Washington, D.C. 1970.

Department of Health, Education, and Welfare. *Survey of Selected Hospital Manpower.* February 1973. Washington, D.C.

Egan, Mary C. *Background Paper on the Recommendations of Conferences and Groups Related to National Nutrition Policy 1917–1974.* Department of Health, Education, and Welfare. May 1974.

Federal Register. *Federal Trade Commission—Food Advertising: Proposed Trade Regulation Rule and Staff Statement.* November 11, 1974.

Finch, Robert H. *Toward a Comprehensive Food and Nutrition Program.* Public Health Reports. Vol. 84, No. 8, August 1969. Department of Health, Education, and Welfare.

Gallese, Liz R. *Boston's Sharon King Becomes Local TV Star by Knocking Products.* Wall Street Journal. October 20, 1975.

General Accounting Office. *Evaluation of Efforts to Determine Nutritional Health of the U.S. Population B–164031(3).* November 20, 1973.

Hegsted, D. Mark. *Food and Nutrition Policy—Now and in the Future.* Journal of the American Dietetic Association. Vol. 64. April 1974.

Heinz, Henry J. 2nd. *Nutritional Illiteracy.* New York Times, June 14, 1972.

Karkeck, Joan M. *Statement on Home Health Care-Dietary Counseling*, before the Mock Hearing of the Annual Meeting of the American Dietetic Association, October 21, 1975.

Lappe, Frances Moore, *Diet for a Small Planet.* Ballantine Books. 1975.

Mayer, Jean (Editor). *U.S. Nutrition Policies in the Seventies.* W. H. Freeman and Company. 1973.

Moore, Maggie E. *Nutrition Education in Medical Schools, Update—1974.* Paper prepared for the Department of Foods and Nutrition, American Medical Association. 1974.

Moynihan, Daniel P. *The Politics of a Guaranteed Income.* Random House. 1973.

National Academy of Sciences. *World Food and Nutrition Study—Interim Report.* Washington, D.C. 1975.

National Board of Health and Welfare, Sweden. *Diet and Exercise.* Stockholm, 1972.

Nichaman, Milton Z. *Developing a Nutritional Surveillance System.* Journal of the American Dietetic Association. Vol. 65. July 1974.

Nutrition Interdisciplinary Cluster, President's Biomedical Research Panel. Draft of final report. National Academy of Sciences. 1975.

Nutrition Study Group, Department of Health, Education, and Welfare. *What Should be the Department's Role In Nutrition and Diet Pertaining to Health?* (unpublished report). September 1971.

Paarlberg, Don. Speech on new agenda for farm policy, reprinted under *New Control of Farm Policy Described*, Milling & Baking News, September 23, 1975.

Phillips, Margaret G. *The Nutrition Knowledge of Medical Students.* Journal of Medical Education, Vol. 46, January 1971.

Popkin, Barry M. *Economic Benefits for the Elimination of Hunger in America.* Institute of Research on Poverty, University of Wisconsin. 1969.

Quimby, Freeman H. *Hunger and Malnutrition in the United States; How Much?* Library of Congress. May 1, 1975.

Rynearson, Edward H. *Americans Love Hogwash.* Nutrition Reviews, Special Supplement. July 1974.

Select Committee on Nutrition and Human Needs. *National Nutrition Policy Study—1974: Part 6—Nutrition and Health, June 21, 1974.* Government Printing Office.

Select Committee on Nutrition and Human Needs. *National Nutrition Policy Study—1974: Part 6A—Appendix to Nutrition and Health, June 21, 1974.* Government Printing Office.

Select Committee on Nutrition and Human Needs. *Nutrition Education—1972: Part 1—Overview—Consultants' Recommendations. December 5, 1972.* Government Printing Office.

Select Committee on Nutrition and Human Needs. *Nutrition Education hearings, 1973: Part 7—School Nutrition Education Programs, Pittsburgh, Pa., May 25, 1973.* Government Printing Office. 1973.

Select Committee on Nutrition and Human Needs. *Nutrition and Human Needs hearings, Part 3—The National Nutrition Survey, January 22, 23, 27, and 28, 1969.* Government Printing Office. 1969.

Weir, C. Edith. *Benefits from Human Nutrition Research.* Science and Education Staff, Department of Agriculture. August 1971.

Wen, Chi-pang; Weerasinghe, Hayleon D.; Dwyer, Johanna T. *Nutrition Education in U.S. Medical Schools.* Journal of the American Dietetic Association. Vol. 63, October 1973.

White House Conference on Food, Nutrition and Health. *Final Report.* Government Printing Office. 1970.

White, Philip L. *Thoughts on American Eating Habits.* Comprehensive Therapy. Vol. 1, No. 5. September 1975. American Society of Contemporary Medicine and Surgery.

APPENDIX A

BENEFITS FROM HUMAN NUTRITION RESEARCH

[By C. Edith Weir]

This report is part of a study conducted at the direction of the Agricultural Research Policy Advisory Committee, U.S. Department of Agriculture. A joint task group representing the State Agricultural Experiment Stations and the U.S. Department of Agriculture was assigned the responsibility for making the study. Task group members were:

Dr. Virginia Trotter, co-chairman, dean, College of Home Economics, University of Nebraska; Dr. Steven C. King, co-chairman, associate director, Science and Education Staff, U.S. Department of Agriculture; Dr. Walter L. Fishel, assistant professor, Department of Agriculture and Applied Economics, University of Minnesota; Dr. H. Wayne Bitting, program planning and evaluation staff, Agricultural Research Service, U.S. Department of Agriculture; Dr. C. Edith Weir, Assistant Director, Human Nutrition Research Division, Agricultural Research Service, U.S. Department of Agriculture.

Better health, a longer active lifespan, and greater satisfaction from work, family and leisure time are among the benefits to be obtained from improved diets and nutrition. Advances in nutrition knowledge and its application during recent decades have played a major role in reducing the number of infant and maternal deaths, deaths from infectious diseases, particularly among children, and in extending the productive lifespan and life expectancy. Significant benefits are possible both from new knowledge of nutrient and food needs and from more complete application of existing knowledge. The nature and magnitude of these benefits is estimated in Table 1. Potential benefits may accrue from alleviating nutrition-related health problems, from increased individual performance and satisfactions and increased efficiency in food services. A vast reservoir of health and economical benefits can be made available by research yet to be done on human nutrition.

Major health problems are diet related.—Most all of the health problems underlying the leading causes of death in the United States (Fig. 1) could be modified by improvements in diet. The relationship of diet to these health problems and others is discussed in greater detail later in this report. Death rates for many of these conditions are higher in the U.S. than in other countries of comparable economic development. Expenditures for health care in the U.S. are skyrocketing, accounting for 67.2 billion dollars in 1970—or 7.0 percent. of the entire U.S. gross national product.

The real potential from improved diet is preventive.—Existing evidence is inadequate for estimating potential benefits from improved diets in terms of health. Most nutritionists and clinicians feel that the real

SOURCE. Human Nutrition Research Division, Agricultural Research Service, U.S. Department of Agriculture. Issued August 1971 by Science and Education Staff, United States Department of Agriculture, Washington, D.C.

potential from improved diet is preventative in that it may defer or modify the development of a disease state so that a clinical condition does not develop. The major research thrust, nationwide, has been on the role of diet in treating health problems after they have developed. This approach has had limited success. USDA research emphasis has been placed on food needs of normal, healthy persons and findings from this work have contributed much of the existing knowledge on their dietary requirements.

Benefits would be shared by all.—Benefits from better nutrition, made possible by improved diets, would be available to the entire population. Each age, sex, ethnic, economic, and geographic segment would be benefited. The lower economic and nonwhite population groups would benefit most from effective application of current knowledge.

These savings are only a small part of what might be accomplished for the entire population from research yet to be done. Some of the improvements can be expressed as dollar benefits to individuals or to the nation. The social and personal benefits are harder to quantify and describe. It is difficult to place a dollar figure on the avoidance of pain or the loss of a family member; satisfactions from healthy, emotionally adjusted families; career achievement; and the opportunity to enjoy leisure time.

Major health benefits are long range.—Predictions of the extent to which diet may be involved in the development of various health problems have been based on current knowledge of metabolic pathways of nutrients, but primarily of abnormal metabolic pathways developed by persons in advanced stages of disease. There is little understanding of when or why these metabolic changes take place. The human body is a complex and very adaptive mechanism. For most essential metabolic processes, alternate pathways exist which can be utilized in response to physiological, diet, or other stress. Frequently, a series of adjustments take place and the ultimate result does not become apparent for a long time, even years, when a metabolite such as cholesterol accumulates. Early adjustment of diet could prevent the development of undesirable long-range effects. Minor changes in diet and food habits instituted at an early age might well avoid the need for major changes, difficult to adopt later in life.

Regional differences in diet related problems.—The existence of regional differences in the incidence of health problems has been generally recognized and a wide variation in death rates still exists among geographic areas. These differences in death rate may reflect the cumulative effect of chronic low intake levels of some nutrients throughout the lifespan and by successive generations. A number of examples of regional health problems attributable to differences in the nutrient content of food or to dietary pattern could be given. Perhaps the best known is "the goiter belt" where soils and plants were low in iodine and the high incidence and death rate of goiter was reduced when the diet was supplemented with iodine. Another situation existed in some of the southern states where pellagra was a scourge a few decades ago. Corn was the major food protein source for low income families in these areas. The resulting niacin deficiency raised the incidence of pellagra to epidemic proportions.

Migration from the high death rate areas almost always results in a reduction in the death rate, although the improvement never approaches the level achieved by those who were born and continued to live in the low rate areas. Similarly, persons who move from low rate areas into higher rate areas lose part of the advantage. If the death rate for one of the high death rate areas, Wilkes Barre, Pennsylvania, were applied to the entire U.S. population, 140,489 more persons under 65 years would have died per year during the period 1959–61. If the death rate for one of the lower rate areas, Nebraska, had prevailed, there would have been 131,634 fewer deaths. The highest death rate areas generally correspond to those where agriculturists have recognized the soil as being depleted for several years. This suggests a possible relationship between submarginal diets and health of succeeding generations.

TABLE 1.—MAGNITUDE OF BENEFITS FROM NUTRITION RESEARCH

Health problem	Magnitude of loss	Potential savings from improved diet
	PART A. NUTRITION RELATED HEALTH PROBLEMS	
Heart and vasculatory	Over 1,000,000 deaths in 1967	
	Over 5 million people with definite or suspect heart disease in 1960–62.	25-percent reduction.
	$31.6 billion in 1962	20-percent reduction.
Respiratory and infectious	62,000 deaths per year	
	246 million incidents in 1967	20 percent fewer incidents.
	141 million work-days lost in 1965–66	15–20 percent fewer days lost.
	166 million school days lost	Do.
	$5 million in medical and hospital costs	$1 million.
	$1 billion in cold remedies and tissues	$20 million.
Mental health	2.5 percent of population of 5.2 million people are severely or totally disabled. 25 million people have manifest disability.	10 percent fewer disabilities.
Infant mortality and reproduction.	Infant deaths in 1967—79,000	50 percent fewer deaths.
	Infant death rate 22.4 per 1,000	Do.
	Fetal death rate 15.6 per 1,000	Do.
	Maternal death rate 28.0 per 100,000 live births	Do.
	Child death rate (1–4 yrs.) 96.1 per 100,000 in 1964	Reduce rate to 10 per 100,000.
	15 million with congenital birth defects	3 million fewer children with birth defects.
Early aging and lifespan	49.1 percent of population, about 102 million people have one or more chronic impairments.	10 million people without impairments
	People surviving to age 65: Percent	
	White males 66	1 percent improvement per year to 90 percent surviving.
	Negro males 50	
	White females 71	
	Negro females 64	
	Life expectancy in years:	
	White males 67.8	Bring Negro expectancy up to to White.
	Negro males 61.1	
	White females 75.1	
	Negro females 68.2	
Arthritis	16 million people affected	8 million people without afflictions.
	27 million work days lost	13.5 million work days.
	500,000 people unemployed	125,000 people employed.
	Annual cost $3.6 billion	$900 million per year.
Dental health	44 million with gingivitis; 23 million with advanced periodontal disease; $6.5 billion public and private expenditures on dentists' services in 1967; 22 million endentulous persons (1 in 8) in 1957; ½ of all people over 55 have no teeth.	50 percent reduction in incidence, severity and expenditures.
Diabetes and carbohydrate disorders.	3.9 million overt diabetic; 35,000 deaths in 1967; 79 percent of people over 55 with impaired glucose tolerance.	50 percent of cases avoided or improved.
Osteoporosis	4 million severe cases, 25 percent of women over 40	75 percent reduction.
Obesity	3 million adolescents; 30 to 40 percent of adults; 60 to 70 percent over 40 years.	80 percent reduction in incidence.
Anemia and other nutrient deficiencies.	See improved work efficiency, growth and development, and learning ability.	
Alcoholism	5 million alcoholics; ⅓ are addicted	33 percent.
	About 24,500 deaths in 1967 caused by alcohol	Do.
	Annual loss over $2 billion from absenteeism, lowered production and accidents.	Do.

TABLE 1.—MAGNITUDE OF BENEFITS FROM NUTRITION RESEARCH—Continued

Health problem	Magnitude of loss	Potential savings from improved diet
Eyesight	48.1 percent, or 86 million people over 3 years wore corrective lenses in 1966; 81,000 become blind every year; $103 million in welfare.	20 percent fewer people blind or with corrective lenses.
Cosmetic	10 percent of women ages 9 or more with vitamin intakes below recommended daily allowances.	
Allergies	32 million people (9 percent) are allergic	20 percent people relieved.
	16 million with hayfever asthma	
	7–15 million people (3–6 percent) allergic to milk	90 percent people relieved.
	Over 693 thousand persons (1 in 3,000) allergic to gluten.	Do.
Digestive	8,495 thousand work-days lost; 5,013 thousand school-days lost; About 20 million incidents of acute condition annually.	25 percent fewer acute conditions.
	$4.2 billion annual cost; 14 million persons with duodenal ulcers; $5 million annual cost; 4,000 new cases each day.	Over $1 billion in costs.
Kidney and urinary	55,000 deaths from renal failure; 200,000 with kidney stones.	20 percent reduction in deaths and acute conditions.
Muscular disorders	200,000 cases	10 percent reduction in cases.
Cancer	600,000 persons developed cancer in 1968; 320,000 persons died of cancer in 1968.	20 percent reduction in incidence and deaths.
PART B. INDIVIDUAL SATISFACTIONS INCREASED		
Improved work efficiency		5 percent increase in on the job productivity.
Improved growth and development.	113,000 deaths from accident. 324.5 million work-days lost; 51.8 million people needing medical attention and/or restricted activity.	25 percent fewer deaths and work-days lost.
Improved learning ability	Over 6.5 million mentally retarded persons with I.Q. below 70; 12 percent of school age children need special education.	Raise I.Q. by 10 points for persons with I.Q. 70–80.
PART C. INCREASED EFFICIENCY IN FOOD SERVICES		
Improved efficiency in food preparation and menu planning.		Not estimated.
Reduced losses of nutrients in food storage, handling, and preparation.		Do.
Improved efficiency in food selection.		Do.
Improved efficiency in food programs.		Do.

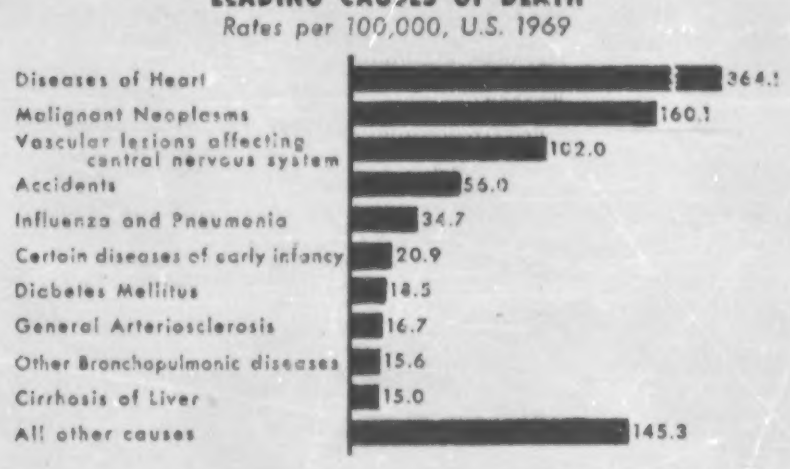


FIGURE 1

APPENDIX B

ECONOMIC BENEFITS FROM THE ELIMINATION OF HUNGER IN AMERICA

[by Barry M. Popkin*]

Abstract

The relationship between the elimination of malnutrition and improved mental and physical performance, and lowered mortality and morbidity rates are examined.

These relationships are used to determine the economic benefits which will accrue to this society and the poverty population if malnutrition is eliminated. These benefits can also be viewed as social costs of continued malnutrition.

Traditional human capital framework is utilized to determine the present value of the benefits which will accrue over the lifetime of the present malnourished poverty population. The most significant gain is from higher educational achievement. In this area, the elimination of malnutrition among 3.3 million poor children will produce a $6.3 to $18.8 billion increase in GNP over the lifetime of these children. The range of total economic benefits from the elimination of malnutrition will be between $14.4 and $50.3 billion.

Introduction

Hunger and malnutrition have been a key concern for many in this nation. Accompanying this concern about hunger's causes and effects have been a myriad of proposals and programs dealing with the perceived problems.

Any program which attempts to deal seriously with this problem will be costly. On the other hand, it is costly not to take action against hunger. The cost of such inaction can be viewed as the potential economic benefits from the elimination of malnutrition.

This paper examines certain of these benefits which may come from the elimination of malnutrition among America's population under the poverty line. Only the effects on economic performance of the poverty population were calculated in this study. These benefits can be broken down into five categories. Excluded are the external benefits to the nonpoverty population and numerous nonquantifiable benefits to the poverty population.

*Barry M. Popkin is a researcher with the Institute for Research on Poverty. This study was based on material developed for the U.S. Senate Committee on Nutrition and Human Needs in July 1969. This study was financed by the Institute for Research on Poverty at the University of Wisconsin pursuant to the Economic Opportunity Act of 1964. Special thanks go to Professors Ralph Andreano and W. Lee Hansen of the University of Wisconsin, and Nancy Amidei of the Senate Committee and Professor R. Liddman of Oberlin for their assistance. Economics graduate student Stephen Gold was the research assistant for this study.

These categories are presented below with their cumulative economic benefits in parentheses.[1]

1. *Education.*—Improved nutrition improves learning through what we believe are structural changes in the brain, prevents an interruption of cognitive development, and increases the ability to concentrate and work ($6.4–$19.2 billion).

2. *Physical performance.*—Improved nutrition increase the capacity for prolonged physical work, raises the productivity of workers and increases the motivation to work ($6.4–$25.8 billion).

3. *Morbidity.*—Improved nutrition results in higher resistance to disease, and lowers the severity of disease ($201–$502 million).

4. *Mortality.*—Improved nutrition decreases fetal, infant, child and certain types of maternal mortality ($68–$157 million).

5. *Intergenerational effects.*—Improved nutrition makes healthy mothers who have healthy children. Also, better educated parents lead to better educated children ($1.3–$4.5 billion).

These computations indicate that if malnutrition among members of the poverty population were eliminated, the present value increase of national product, conservatively estimated, would be between $14.4 and $50.3 billion, assuming that motivation, training level, need achievement, and time horizons would remain the same. It should be noted that although all these relationships between the various categories such as physical and mental performance are quite clear, many of the specific interrelationships have not been examined for their effects on large populations. These relationships are mainly based on small studies and interferences drawn from laboratory and clinical findings.

This study consists of three parts: First, estimation of the number malnourished; second, determination of the economic effects if malnutrition were eliminated; and third, evaluation of the biases of the analysis.

I. ESTIMATION OF THE "MALNOURISHED POPULATION"

Nutritional status tends to be closely linked with income. Thus the highest concentration of malnourished people is found in the poverty population below the poverty line. In fact, the poverty line is based on an income level necessary to avoid severe malnutrition. However, the amount indicated is not adequate for urban families where a family of four with an income of $5,500, or $1,000–$2,000 above "poverty," probably would not be able to purchase enough foods. Actually, these families should be classified as poor under a poverty budget based on a realistic food plan.

Biochemical studies of blood and urine were used to determine the percent malnourished in various age-race-geographical groupings. In general, biochemical findings are quite valid as a measure of nutritional status.

As no comprehensive national study has been made to determine the percent of malnutrition among the poverty population, the data used here to provide a picture have been put together from many

[1] The less tangible effects of hunger and malnutrition—listlessness, irritability, depression—were not valuated but cannot be dismissed. Structural problems such as weight, height, fragile bones, and the trainability of muscles were not valuated.

sources.[2] Among these are small scale studies such as those done by OEO on Head Start mothers and children. Much of the data used is taken from unpublished reports made by OEO or the Senate Committee on Nutrition and Human Needs. Table 1 shows the poverty population; Table 2, the percent malnourished; and Table 3, the malnourished population.

TABLE 1.—POVERTY POPULATION

Age	Non-South				South				Total
	Urban		Rural		Urban		Rural		
	White	Non-white	White	Non-white	White	Non-white	White	Non-white	
0 to 1	180, 810	183, 520	141, 120	2, 960	53, 900	44, 992	114, 170	64, 528	786, 000
1 to 5	665, 173	1, 150, 621	519, 551	19, 654	198, 433	281, 591	418, 824	403, 839	3, 657, 686
6 to 17	1, 650, 610	937, 870	1, 166, 022	64, 398	570, 102	607, 625	1, 248, 728	1, 141, 972	7, 387, 327
14 to 65 or over, working males [1]	1, 444, 000	348, 516	1, 083, 192	42, 339	562, 522	288, 106	1, 150, 208	602, 571	
14 to 65 or over, working females	2, 007, 796	505, 787	806, 074	42, 209	547, 103	313, 900	679, 049	363, 150	
Pregnant women, 14 to 44	559, 341	290, 649	203, 265	16, 683	144, 630	146, 556	149, 840	100, 348	

[1] Few men and women age 14 to 17 work. Most of this age group are included in the age 6 to 17 group.

Source: 1967 current population survey with poverty level based on the USDA's lowest priced food plan (economy plan).

TABLE 2.—POVERTY POPULATION MALNOURISHED

[Percent malnourished]

Age	Non-South				South			
	Urban		Rural		Urban		Rural	
	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite
0 to 2	30	57	38	25	33	54	30	60
2 to 5	28	45	19	19	21	40	20	20
5 to 16	15	40	20	35	30	46	17	25
16 to 59	30	50	22	65	35	60	20	40
Pregnant women	35	65	40	63	60	70	70	60

Source: Popkin, Barry M., "Economic Benefits from the Elimination of Malnutrition," study prepared for the U.S. Senate Committee on Nutrition and Human Needs, July 1969.

TABLE 3.—MALNOURISHED POPULATION

Age	Non-South				South				Total
	Urban		Rural		Urban		Rural		
	White	Non-white	White	Non-white	White	Non-white	White	Non-white	
0 to 1	54, 243	104, 606	53, 625	740	17, 787	24, 296	34, 251	38, 717	328, 265
1 to 5	186, 248	517, 779	98, 715	3, 734	41, 671	112, 636	83, 765	121, 152	1, 165, 700
6 to 17	247, 591	375, 148	233, 204	22, 539	171, 031	279, 508	212, 284	285, 493	1, 826, 799
14 to 65 or over, working males	433, 200	174, 258	231, 702	27, 845	196, 883	172, 864	230, 042	241, 028	1, 707, 822
14 to 65 or over, working females	602, 339	252, 894	197, 136	27, 436	191, 486	187, 854	135, 810	145, 260	1, 740, 215
Pregnant women	195, 769	194, 722	81, 306	10, 510	86, 778	102, 589	104, 888	64, 209	836, 771
Total	1, 719, 391	1, 619, 407	895, 688	92, 804	705, 636	879, 747	801, 040	891, 859	7, 605, 572

Source: Combination of tables 1 and 2.

[2] The National Nutrition Survey in 10 states, while completed for purposes of data collection, has not been analyzed and has been only partially released. It is generally accepted that HEW does not want to publish the results because the incidence of malnutrition was found to be so widespread.

II. CALCULATION OF ECONOMIC BENEFITS

Quantifiable, economic benefits from the elimination of malnutrition may be realized in the areas of mental performance, physical performance, morbidity, mortality, and intergenerational effects.[3] All of these effects can be estimated. Each aspect will be taken up separately.

A few points must be kept in mind. First, the malnourished who are hospitalized include not only the patients, almost all young children, of course, who are classified in hospital records as suffering from malnutrition but also many of those who are classified under other headings, with illnesses to which mild, moderate, or severe malnutrition contributed to a lesser or greater degree, although their immediate need for aid was precipitated by an intercurrent illness. Just as a man with terminal carcinoma of the bronchus dying of pneumonia should be considered as dying not of pneumonia but of the underlying causes, so a child with moderate or severe malnutrition who dies from gastroenteritis should be considered as dying from malnutrition. In a well nourished child, the gastroenteritis probably would not have been fatal or would not have occurred at all. Second, many economic benefits from the elimination of malnutrition will be excluded from consideration in this study. The major exclusion is the cost incurred in connection with the treatment of the malnourished. Described briefly, that is the cost of medical services including the cost to hospital of in-patient treatment of malnutrition and related diseases and the cost of out-patient and health centers and other clinic treatment, plus the cost to parents or person involved, including the cost of treatment by private doctor, the cost of transport to and from treatment and for hospital visiting, and the cost to responsible relatives of time lost from work for all these actions.[4]

A. Mental performance—Education achievement

If malnutrition among poor children were eliminated, economic benefits would come about because these children would be capable of 10–30 percent higher mental achievement. This higher achievement would result in both a 10–30 percent higher performance in each grade and a 10–30 percent reduction in the number of grades repeated by these same children. The causative relationship between the higher achievement and improved nutritional status is based upon a detailed analysis of the clinical nutrition literature and discussions with many nutritionists. A few of the more significant studies are referred to in this paper.

There are 3.3 million malnourished children living in poverty. The total gain in higher mental performance would produce a gain in lifetime earnings of $6.4 to $19.2 billion, mainly in higher achievement. These figures are present values.

1. Relationship

There are three aspects to this relationship. First, malnutrition increases the incidence of permanent brain damage significantly among

[3] Some of the sources are contained in the following section. A detailed 12-page bibliography is available from the author upon request. Medical and clinical nutrition journals and books provided most of the information required for this analysis.

[4] R. Cook, "The Financial Cost of Malnutrition in the 'Commonwealth Caribbean'," *The Journal of Tropical Pediatrics*, (June 1968): 60, 61.

children aged 0–4 years.[5] If the under nutrition occurs after the age of three years, there probably will be no permanent damage.

Second, malnourished children even if they have not suffered brain damage, may suffer retarded cognitive development. The apathy of nutritional deprivation (especially anemia and protein deficiency) results in poorly developed inter-sensory integrative performance. Often the results of this apathy and listlessness is questionable but Dr. Joaquin Cravioto sees these aspects of the infant's behavior leading to a progressive withdrawal from the environment.[6] The inactive child does not deal enough with visual and tactile sensations and has fewer contacts with other persons. In total he does not utilize the stimuli around him. This leads to either a delay in the conditioning or the effective production of conditioned reflexes. "Evidence already exists that the lag in the development of certain varieties of inter-sensory integrations have a high correlation with backwardness in learning to read" and . . . "can interfere with a second primary educational skill—learning to write." [7]

Third, children aged 6–18 cannot utilize fully the potential to concentrate and work displayed by well-nourished children of the same background. Hungry students are unable to concentrate, have poor judgment, are irritable, moody and unable to sustain mental application. Controlled studies done in Asia, Africa, and the United States have shown that increased food intake produces changes in mental performance.[8]

Two highly significant and suggestive studies within the United States were done, one in rural areas, the other in an urban area. During a 3-year study in isolated and stable Kentucky county school districts, children of the experimental schools with improved nutrition gained 30 months in mental age, compared to 15.5 months gained by the children of the control schools—a difference of 14.5 months (a performance 94 percent better than the control group).[9] In 1944, Kugelmass, Poull, and Samuel conducted a study on nutritional performance in normal and mentally retarded children in New York City.[10] Fifty of the children classified as normal malnourished and 50 as normal well-nourished were matched for chronological age, I.Q., and interval between Kuhlman-Binet or Stanford-Binet tests. Following a period of observation which varied between 1, and 3½ years, the malnourished group with the nutritional supplements showed an average I.Q. increase of +18 points in contrast with an average of 0.9 for the well-nourished group.

---

[5] Cravioto and DeLicardie qualify their findings by the duration of the untreated malnutrition and the period of infancy. Also they feel the question of permanent retardation remains open. Also they feel it is difficult to "distinguish the particular contributions of early severe malnutrition, adequate environment, and experimental opportunities to defective cognitive function."
J. Cravioto and E. R. DeLicardie, "The Long-Term Consequences of Protein-Calorie Malnutrition," *Nutrition Reviews*, 29, No. 3 (May 1971): 111. Also, Joaquin Cravioto, "Malnutrition and Behavioral Development in the Preschool Child," from *Pre-School Child Malnutrition*, National Academy of Sciences—National Research Council, Publication 1282, Washington, D.C. 1966.
George B. Graham, "Effect of Infantile Malnutrition on Growth," *Federation Proceedings*, 26, (January-February 1967): 139.

[6] Joaquin Cravioto, "Malnutrition and Behavioral Development in the Preschool Child," from *Pre-School Child Malnutrition*, National Academy of Sciences—National Research Council, Publication 1282, Washington, D.C. 1966.
Joaquin Cravioto, Elsa DeLicardie and Herbert G. Birch, "Nutrition, Growth, and Neurointegrative Development: An Experimental and Ecologic Study," *Pediatrics*, 38, No. 2, part II (August 1966).

[7] Both of these quotes are taken from Cravioto, et al., "Nutritional Growth," p. 359.

[8] Ethel Austin Martin, *Nutrition in Action* (New York: Holt, Rinehard, and Winston, Inc., 1963): 213.
Nevin S. Scrimshaw, "Nutrition and Mental Development" (Paper delivered at the Twenty-Fifth Anniversary Commemoration of the Nutrition Foundation, Inc., November 17, 1966): 13, 14.
Roger J. Williams, *Nutrition in a Nutshell* (New York: Doubleday and Company, Inc., 1962).

[9] Maurice F. Seay and Leonard E. Meece, "Sloane Experiment in Kentucky," Bulletin of the Bureau of Social Services, College of Education, v. 16 (University of Kentucky, June 1944): 68.

[10] Scrimshaw, "Nutrition and Mental Development."

2. Economic Benefits

The pertinent economic benefits from higher mental performance were calculated by using the lifetime income differential between high-school drop-outs and high-school graduates.[11] There are two basic assumptions which justify this: First, gains in yearly achievement have the same implication for future earnings as do gains in knowledge resulting from more years of schooling. Second, short-term gains in educational achievement can be maintained over time. Some children with better nutrition will attend school for an extra year while others will gain in achievement. The extra year in school and the gain in yearly achievement will be assumed to have the same impact on a person's earning potential. Among malnourished children aged 0–5 and 6–18, 10–30 percent higher achievement will be gained by eliminating malnutrition.

The income differential between high-school graduates and drop-outs is fairly representative of what additional schooling (or an increase in achievement) is worth in economic terms. ". . . why the drop-out-graduate differential is more appropriate is that average educational attainment for under-privileged children falls within the tenth to twelfth grade range. If more is learned in earlier years *and* is maintained, it would seem most akin to lengthening the average period in high school, moving it closer to the twelfth grade level. . . ."[12]

In Table 4 the results of those calculations of higher performance can be found. The percentage discussed earlier were used here. The total impact of increased educational achievement from the elimination of malnutrition ranges from $6.3 billion to $18.8 billion. These lower and upper bounds give the range of benefits attributed to higher achievement.

TABLE 4.—ECONOMIC BENEFITS OF EDUCATION, EDUCATIONAL ACHIEVEMENT—CHILDREN (0-17)

	Nonsouth		South		Total
	Urban	Rural	Urban	Rural	
White:					
Lower limit	$922, 769, 720	$728, 909, 486	$435, 762, 503	$624, 465, 180	
Upper limit	2, 768, 309, 159	2, 186, 728, 459	1, 307, 287, 510	1, 873, 395, 540	
Nonwhite:					
Lower limit	1, 885, 935, 890	51, 070, 778	787, 321, 464	842, 001, 397	
Upper limit	5, 657, 807, 669	153, 212, 333	2, 361, 964, 392	2, 526, 004, 192	
Total:					
Lower limit					$6, 278, 235, 418
Upper limit					18, 534, 709, 254

Note: Numbers may not add due to rounding.

[11] Income data was available for each grouping from the Current Population Survey. Present values were calculated using standard rates of survival, a 6 percent interest rate and a 2 percent growth rate (4 percent discount rate). An explanation of the present value concept and the tables of present values for various education levels can be obtained from the author.

[12] Thomas I. Ribich, *Education and Poverty*, (Washington, D.C.: The Brookings Institution, 1968): 68-70.

For a further discussion of this subject see chapters 1 and 4. This income differential was calculated from the Current Population Reports, Series P-60, No. 56 which gives the present value of lifetime incomes for a normal population and the present value for the poor.

The poverty population values were not used due to peculiarity of the data for high-school graduates and above. Much research has indicated the difficulty with education and poverty linkages. These values were then deflated by about 30 percent. The reasons for this are straight-forward. The income differential between dropouts and graduates for the normal population must overstate this differential since persons in the poverty subgroup would have lower average and lifetime income. It is the ratio of the high school graduate differential for people with less than $3,000 income versus people with income of $3,000–$6,000. Due to the fact that education is less important for poor people, their differential will peak earlier than the normal population. Thus, the results of the deflation are somewhat conservative. The 30 percent figure was obtained from unpublished research by Professor Robinson Hollister, formerly of the University of Wisconsin, now a visiting professor at Princeton University. The conclusions of Lester Thurow's Brookings Publication, *Poverty and Discrimination*, reinforce this technique.

Also, there will be a 10–30 percent reduction in the rate of grades repeated by these same children. Table 5 contains the repeating (flunk) rates for the poverty population. The economic benefits received for lowering the failure rate are found in Table 6. The results are determined by taking the number of malnourished children of from 6 to 17 years of age (the school population) and multiplying this by the respective failure rates to determine the number of children who fail at least one year of school. The percentage reduction in this rate was then applied and, finally, the current income for 18-year olds was used to determine economic benefits. It is assumed that the reduction of failure rates means those children who will no longer repeat a grade will now receive income at least 1 year sooner and, thus, income at age 18 was used. The range of benefits would be between $122,889,901 and $368,669,703.

TABLE 5.—RATE FOR REPEATING GRADES AMONG LOW-INCOME CHILDREN

	White		Nonwhite	
	Rural	Urban	Rural	Urban
Male	0.2244	0.2213	0.2730	0.2699
Female	.1801	.1770	.2288	.2271

Source: John Conlisk, "Determinants of School Enrollment and School Performance," "The Journal of Human Resources," vol. 4, No. 2, spring 1969. The failure rate used is for boys and girls age 10 to 13. This is approximately the median for the ages 7 to 9, 10 to 13, and 14 to 15. Data were not available for the ages 16 to 17 when the failure rates tend to be higher.

TABLE 6.—ECONOMIC BENEFITS OF EDUCATION, FAILURE RATE REDUCTION (6 TO 17)

	Nonsouth		South		Total
	Urban	Rural	Urban	Rural	
White:					
Lower limit	$14,637,187	$14,517,143	$10,111,040	$13,214,856	
Upper limit	43,911,561	43,551,429	30,333,119	39,644,568	
Nonwhite:					
Lower limit	27,137,673	1,686,794	20,219,211	21,365,997	
Upper limit	81,413,019	5,060,381	60,657,632	64,097,991	
Total:					
Lower limit					122,889,901
Upper limit					368,669,703

Note: Number may not add due to rounding.

B. Physical performance—Worker productivity

Economic benefit from the elimination of malnutrition will affect worker productivity. Malnourished working people in poverty (1.71 million men and 1.74 million women) will experience a 10–40 percent increase in their productivity. The resultant lifetime economic benefits to this society from this productivity-gain will range from $6.5 to $25.9 billion.

1. Relationships

Caloric requirements for work are one of the three major requirements that must be satisfied by the energy produced from food. The other two are basal metabolism requirements to keep up the life processes (1600–1800 calories) and growth requirements for children, adolescents, and expectant mothers. There is a close correlation between adequacy of work calories and work productivity. If the work calories are below the required amount for the activity being under-

taken, two things will happen. First, the body will adapt somewhat to this lower food intake by avoiding effort. Second, the body will lose weight.

Numerous studies done in the United States and other Western industrial countries illustrate the significance of this relationship between improved nutrition and physical performance.[13] One of the best controlled studies was done with aircraft workers in Southern California. "One group of workers was given large doses of several vitamins 5 days a week for 9–13 months; a control group was given placebo. During the last 6 months the vitamin group showed statistically significant superiority over the placebo group in absenteeism (3.90 days compared with 4.79 days), in turnover of labor force (8.4 per 100 as compared with 13.5), and in merit ratings based on a careful appraisal of efficiency." [14]

Table 7 shows the relationship between additional protein intake and an improved capacity for work. These studies had poor controls and leave much doubt of the significance of this relationship.

TABLE 7.—PROTEIN INTAKE AND CAPACITY FOR WORK[1]

Year, occupational groups, and "performance capacity"	Intake of calories per day	Intake of g protein per kilogram
1939–41—Miners (Germany):		
Rising	3,000	1–1.2
Falling		below 1
1942—Gardeners (England):		
Unchanged	3,000	1.0
Falling		.7
1946—Scientists (United States):		
Unchanged	3,000	.8
Steep rise after 6 weeks		1.6
1951—Students (United States):		
Doubling of muscle power in 12 weeks' training period	4,000	2.0
Slight increase in 12 weeks		1.0
No change in 8 weeks		.8

[1] Keller and Kraut, "Work and Nutrition," p. 73.

2. Economic Benefits

The pertinent economic benefits were calculated only for the malnourished working population between the ages of 14 and 64. The increase in worker performance of 10–40 percent depends on the degree of labor intensity and the previous nutritional status of the worker.

The calculation of benefits is based on one assumption: The employment picture of each worker from each race-sex-region cohort is assumed to be constant. Thus, his productivity will increase but his job and salary will not change so each worker will not capture his increase in productivity.

Then, the benefits to society for each workers' improved productivity are the 10–40 percent increase in productivity, times the present value of lifetime earnings for his sex-race-region-group. Benefits of $6.5 to $25.9 billion will necessarily accrue to society in terms of increased productivity. These benefits are calculated in Table 8.

[13] The Keller and Kraut and the UNFAO articles summarize many of these studies.
W. D. Keller and H. A. Kraut, "Work and Nutrition," Geoffrey H. Bourne, ed., *World Review of Nutrition and Dietetics*, V. 3, (New York, Hafner, 1962).
W. W. Tuttle and Edward Herbert, "Work Capacity with No Breakfast and a Mid-Morning Break," *Journal American Dietetic Association*, 37, (August 1960).
United Nations Food and Agriculture Organization, *Nutrition and Working Efficiency* (Rome: UNFAO, 1962).
C. E. A. Winslow, *The Cost of Sickness and the Price of Health*, World Health Organization (Geneva, 1951).
[14] Winslow, *The Cost of Sickness*, p. 25.

TABLE 8.—ECONOMIC BENEFITS PHYSICAL PERFORMANCE, WORKERS 14 TO 65 PLUS

	Nonsouth		South		Total
	Urban	Rural	Urban	Rural	
Male:					
White:					
Lower limit	$873,634,440	$477,931,715	$432,866,964	$488,632,212	
Upper limit	3,494,537,760	1,911,726,862	1,731,467,855	1,954,528,848	
Nonwhite:					
Lower limit	459,710,030	64,940,109	430,569,651	582,998,526	
Upper limit	1,838,840,119	259,760,436	1,722,278,604	2,331,994,106	
Female:					
White:					
Lower limit	787,377,540	2[illegible]96,994	227,542,814	152,283,753	
Upper limit	3,149,510,163	965,[illegible]974	910,171,255	609,135,021	
Nonwhite:					
Lower limit	610,637,852	51,184,602	363,722,915	216,350,244	
Upper limit	2,442,551,410	204,738,406	1,454,891,659	865,400,976	
Total:					
Lower limit					6,462,880,361
Upper limit					25,851,521,454

C. Morbidity and Resistance to Disease

As a result of better nutrition, fewer work days will be missed due to illness by the 3.45 million working poor. The days lost from work (morbidity rate) will be reduced 10–25 percent. The economic benefits from this will be $200 to $500 million.

1. Relationships

R. J. Williams summarizes this relationship when he states that "every amino acid, mineral, and vitamin which contributes to the health and vigor of one's body is in a sense an anti-infective agency because resistance to disease is a sine qua non of continued existence, and resistance is the highest in those in which the cells and tissues most intimately involved in disease-resistance processes are nourished at the highest level of excellence." [15]

Poor nutrition can lead to a greater incidence of bacterial, viral, richettsial and protozoal infections. Some of the mechanisms of this synergism are interference with antibody response, alternation of tissue integrity, interference with non-specific protective substances, non-specific destruction of bacterial toxins, and nutritional alteration of endocrine balance.[16] Protein, iron, vitamins B and C are key nutrients. The following are examples of these relationships.

a. Leithch has called attention to the Tronhein Naval Training School in which over a period of many years, one-third of the cadets developed tuberculosis, a rate which was not lowered by better housing but which promptly dropped to less than that for the country as a whole, when fresh milk, meat and fruit were added to the diet. Downes divided 194 Negro families exposed to reinfection with tuberculosis into two groups matched for family size and supplied one group with vitamins and minerals for 5 years. The rate per 100 person years was 0.91 in the control group and 0.16 in the group receiving regular vitamin and mineral therapy. Since the numbers were small the difference was barely significant at the 5 percent level. Getz, et al. reports serum levels of vitamin A and C to be lower in 28 persons

[15] Williams, *Nutrition in a Nutshell*, p. 49.
[16] Dr. Nevin Scrimshaw, one of the leading American nutritionists, has written extensively on this subject. For example,
Nevin S. Scrimshaw, "Nutrition and Infection," in J. F. Brock, ed., *Recent Advances in Human Nutrition*, (Boston: Little Brown and Company, 1961).

subsequently developing tuberculosis than in over 1,000 individuals who did not develop this disease.[17]

b. Keller reviewed some of the experiments done with vitamin C. He found that although most of the studies have shown a relationship between vitamin C intake and absences from work, different studies have indicated different doses of this vitamin are needed. Schuenert "saw effects only on doses of as much as 1,000 mg. ascorbic acid per day, while Baker and Winckler (1955) found a reduction in the number of short absences from work on daily supplements of 100 mg. of vitamin C." [18]

c. The International Labor Organization provides an excellent example of the influence of a good lunch on accidents. The UN Food and Agriculture nutrition committee interpreted these results as a reflection of the relation between nutrition and morbidity. In this Canadian study the results before and after the opening of the lunch room per million man/hours worked were determined.[19]

	Number before	Number after
First aid treatment	3,000	2,130
Lost time accidents	49	42

Note: 3 years average.

2. Economic Benefits

As with physical performance, economic benefits were calculated only for the working poor although school attendance will increase, also. Table 9 gives morbidity rates for males and females in the overall work force for age groupings, rates less than those for the poor population. A reduction in these rates will produce gains to society which may accrue to the individual or to the corporation. The increase in productive time will produce gains between $200 and $500 million. These benefits are shown in Table 10.

TABLE 9.—MORBIDITY RATE

[Percentage days lost from work per person per year]

Age	Male	Female
17 to 24	0.0132	0.0164
25 to 44	.0256	.0384
45 to 64	.0532	.0248

Source: U.S. Department of Health, Education, and Welfare. Disability Days: U.S. July 1965 to June 1966. Vital and Health Statistics, series 10, No. 47, GPO, October 1968.

[17] *Ibid.*, p. 376.
[18] Keller and Kraut, "Work and Nutrition," p. 75.
[19] UNFAO, p. 26 from ILO Studies and Reports, New Series, N. 4, *Nutrition in Industry*, 1946, p. 41.

TABLE 10.—ECONOMIC BENEFITS MORBIDITY (14 TO 65 OR OVER)

	Non-South		South		Total
	Urban	Rural	Urban	Rural	
MALE					
White:					
Lower limit	$29,528,854	$16,154,092	$14,630,903	$16,515,769	
Upper limit	73,822,110	40,385,230	36,577,258	41,289,422	
Nonwhite:					
Lower limit	15,538,199	2,194,976	14,553,254	19,705,350	
Upper limit	38,845,498	5,487,440	36,383,136	49,263,375	
FEMALE					
White:					
Lower limit	21,337,931	6,571,669	6,166,410	4,126,890	
Upper limit	53,344,828	16,429,171	15,416,026	10,317,224	
Nonwhite:					
Lower limit	16,548,286	1,387,103	9,856,891	5,863,092	
Upper limit	41,370,714	3,467,757	24,642,227	14,657,729	
Total:					
Lower limit					$200,679,659
Upper limit					501,699,148

Note: Numbers may not be exact due to rounding.

D. Mortality

The loss of years of productive life through premature death results in a significant economic loss to society.[20] The elimination of malnutrition will reduce mortality mainly among two groups, the 328,000 poor malnourished infants and the 837,000 poor malnourished pregnant women. The range of economic benefits from this reduction in malnutrition is between $66 and $156 million.

1. Relationships

Malnutrition directly increases the mortality rate for pregnant women and, indirectly, for infants. During pregnancy, the fetus drains the mother of many nutrients which in malnourished mothers leads to a higher incidence of maternal mortality. Also, maternal malnutrition is a major cause of immaturity and prematurity, both frequently recurring factors in infant deaths.[21] Between one-half and three-fourths of all children who die in the first 4 weeks of life are premature.[22]

Numerous studies have validated this relationship between improved nutrition, especially increased iron and protein, and reduced mortality in less industrialized countries, but few conclusive studies have been completed in the Western industrialized countries.[23] However, one exemplary study was done in Oslo, Norway, by a famous researcher Toverud.[24] Over 6 years he showed that improved nutrition caused 50 percent decrease in stillbirths, premature births, and infant mortality.

---

[20] There is a large literature on this subject. For example, see Dorothy P. Rice, *Estimating the Cost of Illness*, U.S. Department of HEW Public Health Service, Health Economic Series # 6, (Washington, D.C.: GPO, 1966).

Another way of valuating the benefits from reduced mortality looks at the waste of money invested in the education, training, clothing, feeding, and health care of the individual. For less developed economies where each individual's future is more doubtful, this "what's put in" approach is more relevant.

[21] Mark Abramowicz and Edward H. Kass, "Pathogenesis and Prognosis of Prematurity," *The New England Journal of Medicine*, 275, (1966): 878.

A premature infant is born with a weight of less than 2500 grams.

[22] *Ibid.*, p. 880.

[23] For example, see Report of a Study Group on Iron Deficiency Anemia *World Health Organization Technical Report Series No. 182*, (Geneva, 1959).

W. A. Krehl, "A Concept of Optimal Nutrition," *The American Journal of Clinical Nutrition*, 4, No. 6, (1956).

[24] Williams, *Nutrition in a Nutshell*, p. 48.

2. Economic benefits

The impact of improved nutrition upon maternal mortality will reduce the number of deaths 30–60 percent. Among infants aged 0–1, the mortality rate reduction will be 20–50 percent. The present infant and age-specific maternal mortality rates are found in Tables 11 and 12, respectively.

The range of total economic benefits in present value terms is between $66 and $156 million. This is the income which will accrue to these women and children over their lifetimes. Table 13 gives the benefits for each age-sex-race-region cohort for each category.

TABLE 11.—INFANT MORTALITY RATE PER 1,000 LIVE BIRTHS IN 1966

Age	White	Nonwhite
0–1	20.15	38.8

TABLE 12.—FEMALE MORTALITY RATE PER 1,000 WOMEN

Age	White	Nonwhite
14 to 24	0.6	1.0
25 to 34	.9	2.5
35 to 44	1.9	5.3

Source: U.S. Department of Health, Education, and Welfare, "Infant and Post Natal Mortality in the United States" vital and health statistics, National Center for Health Statistics, series 3, No. 4, GPO, October 1965. U.S. Department o Health, Education, and Welfare, "Selected Family Characteristics and Health Measures," vital and health statistics National Center for Health Statistics, series 3, No. 7, GPO, January 1967.

TABLE 13.—ECONOMIC BENEFITS MORTALITY

	Nonsouth		South		Total
	Urban	Rural	Urban	Rural	
Infant mortality (0 TO 1)					
White:					
Lower limit	$4,034,225	$4,443,281	$1,419,776	$3,089,504	
Upper limit	10,085,560	11,108,202	3,549,439	7,723,760	
Nonwhite:					
Lower limit	19,475,037	70,592	3,841,516	6,372,958	
Upper limit	48,687,592	176,481	9,603,792	15,932,395	
Total:					
Lower limit					$42,746,889
Upper limit					106,867,223
Maternal mortality (14 TO 44)					
White:					
Lower limit	4,902,049	1,636,225	1,111,187	1,177,888	
Upper limit	9,804,098	3,272,450	2,222,375	2,355,775	
Nonwhite:					
Lower limit	9,211,128	496,824	3,709,904	2,714,339	
Upper limit	18,422,257	993,647	7,419,808	5,428,679	
Total:					
Lower limit					24,959,544
Upper limit					9,919,088

Note: Numbers may not be exact due to rounding.

E. Intergenerational Effects

The benefits from eliminating malnutrition have been calculated for the poverty population for 1967. It has been assumed that these malnourished persons will be well nourished throughout their lifetime and significant economic benefits of $13.1 to $45.7 billion will accrue to society. The effects of better health will benefit future generations, as well, in three ways.

1. The children of healthy parents will be healthier and better motivated.

2. Healthy mothers will have an easier time raising children.

3. The children of the better educated will be better educated through informal education which children receive at home.[25]

The financial gains from better income now have been estimated to be at least 14 percent of this generation's financial gains. For this study, the effects are merely assumed to be 10 percent of the total economic benefits received from better mental and physical performance, and lower morbidity and mortality rates. The range of these benefits associated with intergenerational effect is between $1.3 and $4.5 billion. Table 14 sums up all the economic benefits.

TABLE 14.—TOTAL ECONOMIC BENEFITS FROM ELIMINATION OF MALNUTRITION

[In 1966 dollars]

Source	Lower limit	Upper limit
1. Education:		
(a) Higher achievement	6,278,236,418	18,834,709,254
(b) Lower flunk rates	122,889,901	368,669,703
Total	6,401,126,319	19,203,378,957
2. Physical performance	6,462,880,361	25,851,521,444
3. Morbidity	200,679,659	501,699,148
4. Mortality:		
(a) Infant mortality	42,746,889	106,867,223
(b) Matecal mortality	24,959,544	49,919,088
Total	67,706,433	156,786,311
Subtotal	13,132,392,772	45,713,385,860
5. Intergenerational effects	1,313,239,277	4,571,338,586
Total economic gain	14,445,632,049	50,284,724,446

F. Total Benefits

The total economic gain to American society from the elimination of malnutrition as quantified, even by the conservative measures used in this paper, ranges from $14.5 billion to $50.3 billion. Of course, quantifiable benefits are by no means the only benefits accruing to a well-nourished society, or even the most important ones. The fact that by eliminating malnutrition millions more people could live healthy, normal lives involves countless socio-psychological benefits both to the individual and the larger society.

[25] Theodore Schultz, and Burton Weisbrod have written on this subject.
T. W. Schultz, "Education and Economic Growth," *Social Forces Influencing American Education*, (Chicago: University of Chicago Press, 1961): 74, 75.
Burton A. Weisbrod, "Education and Investment in Human Capital," *The Journal of Political Economy*, 19, Supplement, No. 5, part 2 (October 1962): 117–118.

Not all of these economic benefits will accrue to healthy poor people. These economic benefits are the returns to society in general. A secondary question exists regarding the extent to which the value of any welfare program which eliminates malnutrition among the poor will be reflected in income, and, thereby, in private returns to the poor. Improved productivity from higher physical performance and lowered days missed from work will result partially in gains by the worker and partially by corporate America. Benefits from improved education and lowered mortality will accrue first to the poor.

III. DOWNWARD BIAS OF ECONOMIC GAINS—REALISM OF ANALYSIS

As was indicated earlier, any study of this kind must be viewed as part science, part speculation. In the case of this paper, the projections may reflect, even at the higher levels, conservative bias on several counts. First, the size of the poor population will necessarily be too small (the OEO figures for poverty in 1967 adjust the Current Population Survey data used here upward by some 7.4 million persons). Second, there are severe problems inherent in the method used to derive our national poverty figures as indicated early in the article. Even the Bureau of Labor Statistics estimates that an urban family of four requires $7,000 to live decently. Finally, morbidity and mortality rates are taken from Department of Health, Education, and Welfare data and reflect the general population rather than the specifically poor population which will experience higher rates.

In addition to the above, it was assumed in this study that the gains to the society and to individuals would be measured by the present value of lifetime earnings for the *poverty* population. That is, the gains from increased productivity, lower morbidity and mortality etc., would be measured by assuming that the respective population subgroups would continue to function in the same labor markets and to earn only a poverty income.[28] No assumption was made that better-fed people would be better able to break out of poverty. This reflects the socio-economic conditions of the presently malnourished population. Naturally, this may bias total economic benefits downward tremendously.

While no exact numbers can be given for the extent of these biases, a reasonable estimate of their impact seems in order. For the typical benefits analysis, our results must be viewed as minimum (both lower and upper bounds). These results probably underestimate the true economic gains to the society by at least 20–50 percent. This downward bias would suggest that actual benefits from eliminating malnutrition would prove much greater than those presented here.

The reduced costs incurred in connection with treatment of the malnourished are the most important excluded benefits. The reduced costs to schools from lower failure rates would be included in that group. Psychic benefits resulting from better health and education and reduced dependency relationships by a well-fed person also exist.

In addition, external benefits were not discussed. Nutrition programs which would affect millions of people will benefit significantly individ-

[28] Structually different labor markets face the poor and nonpoor in our dual economy. For example, Piore, Michael J., "Manpower Policy" in S. Beer and R. Barringer, eds. *The State and the Poor*, (Cambridge: Winthrop Publishing, 1970).

uals other than the direct recipients. For example, the well nourished have a lower tendency to transmit communicable diseases and parasites. Adequate nutrition will help to break the chain of many infections.

A positive bias in the results comes from consideration of political economy. The well known existence of racial and class discrimination greatly handicaps the solution to problems of malnutrition and limits the gains which can be made.

Conclusion

This study has laid out the potential economic gains from eliminating malnutrition in America. By necessity, this analysis is tentative. The lack of adequate information has necessitated a broad estimation ($14.4–$50.3 billion) of the possible dollar benefits. Given the biases discussed, I suspect the actual dollar benefits would be closer to the top of the range. Even ignoring humanitarian considerations, the elimination of malnutrition would probably be more beneficial to this country than many other types of projects competing for public funds.

APPENDIX C

AN "ALTERNATIVE DIET" FOR THE PREVENTION OF ATHEROSCLEROTIC HEART DISEASE

[From the report by the Panel on Nutrition and Health, *National Nutrition Policy Study, 1974–Part 6*, June 21, 1974.]

Many Americans are seeking ways to conveniently, economically, and pleasantly modify their diets to reduce the amount of cholesterol and fat that they consume. Medical research has shown that these dietary modifications can decrease the amount of cholesterol and/or triglyceride in the blood. Hopefully, this will prevent the accumulation of fatty materials in the walls of the arteries. It will take years to know for certain whether this approach will stop atherosclerosis or retard the progress of the disease. Nevertheless, this way of eating does offer the hope of a healthier, longer life for many Americans.

People do not make abrupt changes in their dietary habits. It takes from 2 to 10 years or longer to make radical and permanent changes in one's manner of eating. Therefore, we propose to approach the alteration of food habits in a gradual manner with each phase introducing more changes toward the alternative dietary pattern desired. The major objective of these changes is to lower the blood cholesterol level.

Phase I

The first phase will be to advise people to decrease gradually the amounts of meat, egg yolks and certain dairy products eaten in order to avoid food items extremely high in cholesterol, saturated fat and total fat and to use substitute products, i.e., margarine for butter, vegetable oils and shortening for lard, skim milk cheeses for whole milk and cream cheeses, and egg whites for whole eggs.

Following is an example of how Phase I may be approached:

Eat a Balanced Diet:

1. Increase use of legumes, grains, grain products, fruits and vegetables.
2. Use low-fat animal products—skim milk, egg whites, and rinsed cottage cheese.
3. Be sparing in the use of table salt and "salty" foods.

Control Cholesterol Intake:

1. Decrease the amount of meat and shellfish per day.
2. Use skim milk and water ices or sherbets made from skim milk. Avoid egg yolks, whole milk, cream, and ice cream. Egg whites, dried egg whites or products simulating eggs which are made from egg whites are cholesterol-free and perfectly acceptable.
3. Use margarine, vegetable shortenings, and oils instead of butter and lard.
4. Use rinsed or dry cottage cheese in perference to other cheeses.

Regulate Saturated Fat Intake:

1. Eat small amounts of lean meat, fish, or poultry per day rather than fatty meats.
2. Use low-fat animal products—skim milk and rinsed cottage cheese—instead of whole milk, cream, and cheese.
3. Use margarine, vegetable shortenings, and oils instead of butter and lard.
4. Limit saturated vegetable fat-cocoa butter and coconut oil—and the products made from them (chocolate, many simulated dairy products, and certain shortenings)

Consider the Total Amount of Fat in Your Diet:

1. Eat small amounts of lean meat, fish, and poultry per day.
2. Use moderate quantities of those foods which are by nature predominantly fat; margarines, shortenings, oils, nuts, peanut butter, olives, and avocado.
3. Use sparingly those foods which are comparatively h'gh in fat by reason of their manufacture: regular salad dressings, potato chips, and similar snack foods, fried foods, "fancy breads", rich desserts.

Restrict calories if you are overweight.

(See Chart I, food guide for the "alternative diet").

Phase II

In Phase II people will be encouraged to change their habitual diet further by the incorporation of the recipes developed in "alternative diet product development laboratories" for:

1. *meatless entrees* with emphasis on legumes to ensure adequate protein
2. *baked products* which are cholesterol free and low in fat
3. *appetizers and party snacks* which are cholesterol free and low in fat
4. *meatless sandwiches* and other products used in snack lunches
5. Acceptable substitutes for currently popular high fat, high cholesterol products.

Those recipes will contain little or no salt (sodium chloride and other sodium-containing condiment).

As more and more recipes are developed people will be encouraged to incorporate these into their own repertoire of recipes. At the same time they will be encouraged to use less meat and fat. Since they have been given an array of recipes to use instead of meat this should be a gradual transition from including some meatless meals to many meatless meals to meatless days. This will probably be done in several phases rather than the one as described here initially.

Phase III

Phase III will be to develop directly the philosophy of the alternative diet. It is planned to take a historical approach to the consumption of meat. Man has always eaten meat. What he hasn't done is to eat meat everyday, let alone several times a day. Even today daily meat consumption is only possible for the affluent minority of the world's population. It is neither healthy nor economical to consume large amounts of meat everyday. Therefore, we plan to suggest ultimately that people adopt the pattern of eating meat occasionally.

CHART I.--FOODS FOR THE ALTERNATIVE DIET

LEGUMES	GRAINS	FRUITS
Dried beans and peas and soy-textured protein products.	Whole grain or enriched breads, cereals, rice and pasta.	Wide variety including the citris fruits.

VEGETABLES	OILS	LOW FAT ANIMAL PRODUCTS
Variety including leafy, dark green, red and yellow vegetables, potatoes and other tubers.	Liquid vegetable oils, soft stick and soft margarines, vegetable shortening, and nut and seed products.	Lean fish, poultry and meat; skim milk products and low fat or filled cheeses; egg whites.

APPENDIX D

[Prepared for Assistant Secretary for Health & Scientific Affairs, Department of Health, Education, and Welfare, September 1971]

WHAT SHOULD BE THE DEPARTMENT'S ROLE IN NUTRITION AND DIET PERTAINING TO HEALTH?

POLICY QUESTION ANALYSIS IN RESPONSE TO THE DEPARTMENT PLANNING GUIDANCE MEMORANDUM

PREPARED BY NUTRITION STUDY GROUP

Chairman: Dr. Ogden C. Johnson, Director, Division of Nutrition, FDA.

Members: Dr. Charles U. Lowe, Scientific Director, National Institute of Child Health and Human Development; Dr. Milton Z. Nichaman, Director, Nutrition Program, National Center for Disease Control; Miss Mary C. Egan, Chief Nutrition Section, Maternal and Child Health Service; Mrs. Judith Moore, Special Assistant to Deputy Under Secretary for Policy Coordination; Mr. Sherman Williams, Director, Social and Economics Analysis Division, National Center for Health Services Research and Development; and Miss Margaret Powers, Nutrition Education Specialist for the Office of Nutrition and Health Service, Office of Education.

SECTION 1

POLICY QUESTION

What should be the Department's role in nutrition and diet pertaining to health?

The Department of Health, Education and Welfare is responsible for those programs that protect and improve the health of the population. Nutrition is an intergral part of health and must be treated as one of the basic components of all health maintenance, treatment, and health improvement programs, particularly the preventive health education programs. The goal of Department's health programs is to assure optimal health in our population and to provide such services that those who have health problems have systems available so that their health status can be improved. Nutrition must be an integral part of this goal. Since optimal nutrition is related to both food intake and health factors, many types of action can adversely effect nutritional status. Lack of money, lack of information on foods leading to poor food intake patterns and chronic disease all can cause nutritional problems. The Department's programs in welfare (provision of money) education (assist individuals to understand and use information) and provision of health services (treatment and prevention) should in-

corporate nutrition, since all can and should have a role in achieving optimal nutrition for all Americans as part of the goal of optimal health status.

The issue is not if the Department has a role; the Department has a responsibility to incorporate nutrition concepts into all of its programs, providing adequate resources so that all persons can achieve optimal nutrition and to provide special support for those segments of the population that can not with their own resources achieve optimal nutrition.

In addition to the nutrition role in relation to services and support programs, the Department has a research function both in terms of identifying optimal nutrition and establishing nutritional factors associated with chronic disease problems. This research function has not been presented as an alternative, as this activity is considered essential to better identifying, preventing, and treating health problems. Continued research support is a basic assumption, since without research findings to guide, the service and support program alternatives cannot be directed toward the problems which can be solved with the available resources.

Section 2

ANALYTIC SUB-ISSUES

There are three sub-issues which are integral to the main issue and must be treated separately.

The first is the development of an effective system of surveillance and monitoring of nutritional status, food intake and food quality, with an evaluation system which will permit review of the data being collected and provide basic information for program planning. Such a surveillance system would also provide a means for evaluating the effect of action programs on nutritional health and food intake.

The components of the surveillance system are in operation but must be organized into an effective reporting system. In addition, an evaluation and reporting component must be established. Most of the alternatives proposed later in this report will prove effective only if a nutrition surveillance system can be organized. A proposal for such a system has been drafted and is presented as part of this report.

The second sub-issue is the need to establish a Departmental nutrition policy that can be used by agencies to guide them in determining the role nutrition should have in programs they administer. It would be advantageous to have a stated nutrition health policy that could be used not only within the Department, but would also serve to guide other Federal and State agencies in their consideration of programs that have direct or indirect influence on the nutritional health of individuals or population groups.

The third sub-issue is closely related to the first two, and requires identifying a mechanism for coordinating the nutrition activities of the Department, as well as a means to disseminate surveillance reports, and develop and present Department policy statements on nutrition. The committee recognizes the problem inherent in establishing an office or focal point within the Office of the Secretary. Consideration was given to establishing a DHEW nutrition coordinating group, with perhaps an Executive Secretary. As a part of such a plan, clearly

identified support for evaluation and planning assistance in the area of nutrition and health, within the Office of the Assistant Secretary for Health would be required.

The committee has prepared proposals covering each of these sub-issues, and presented them as the first three items in the Section on proposed solutions.

SECTION 3

DESCRIPTION OF THE PROBLEM

While food supplies remain more than adequate, evidence exists that problem of inadequate and improper food intake, which results in poor nutritional health, occur in the United States. A review of factors which can adversely affect food intake and food selection, such as inadequate income, population shifts, health problems and changing food intake patterns, indicates that if optimal nutritional health is to be achieved by the majority of citizens, and particularly those with the lower incomes, the Department must exercise its leadership role in nutrition, utilizing the several programs it administers in different ways. A review of the major factors to be considered gives a better picture of where problems exist and how the Department can reduce or eliminate these nutritionally related problems.

A. Demographic changes

U.S. population will increase, even though the rate of growth has slowed. The population will continue to include a significant proportion of individuals at nutritional risk because of the increased nutrient requirements for growth and development, child-bearing, and the special physiological changes associated with aging. The absolute increase in the number of people will lead directly to an increase in need for health care, including nutrition services.

Changes in family life which can have a profound effect on capacity of families to meet nutritional needs of their members will probably continue. These include the increasing number of births out-of-wedlock; the sizable number of households headed by a woman, and the increasing number of working mothers with children under 18 years of age. Such changes can mean more meals away from home, fewer meals eaten together by family members and more reliance on convenience foods for meals and snack foods for "nonmeal meals."

The increased mobility of the population and a growing proportion of people moving to areas surrounding central cities will have implications for the location of food marketing resources, planning of delivery systems for nutritional care, etc.

B. Nutrition related to health problems

Many types of nutrition problems contribute to poor health and disability with concomitant loss of productivity and may affect even larger numbers of the population—as adverse changes occur in environment, patterns of living. Many of these problems require dietary modifications for prevention and treatment and thus require the provision of nutrition services, particularly nutrition counseling as an integral aspect of health care. Significant nutrition-related health problems include:

Obesity: Statistical data available indicates a substantial prevalence of obesity at every age in both sexes, no matter how obesity has been defined. Not only is obesity implicated in high incidence of degenerative diseases but it can cause various abnormalities in cardiopulmonary or metabolic function, create problems in physical mobility and contribute to psychological disturbances.

Nutritional-deficiency diseases: Iron-deficiency anemia appears to be a major problem among all segments of population but particularly among infants, preschool children, pregnant and nursing mothers and the elderly. The 10 State Nutrition Survey found low and/or deficient hemoglobins in 25 percent of persons below the poverty level and in approximately 12 percent of those above the poverty level. Data from the Study of Nutritional Status of Preschool Children in the United States also suggests that iron-deficiency anemia is not uncommon among preschool children regardless of socio-economic status, although prevalence is probably greatest among the poor. Biochemical findings in these two studies indicate that low levels of other nutrients such as vitamin A, riboflavin and ascorbic acid may also be cause for concern, particularly among the poor where larger numbers of persons are affected. Data from the 1965 USDA Food Consumption Surveys of over 14,000 individuals drawn from 6,200 households in the spring survey also indicated that sizable numbers had limited intakes of some nutrients, e.g., iron, calcium and riboflavin.

Dental Disease: The prevalence of dental disease in the population today is almost totally universal. Dental caries, periadontal disease, and congential dental defects contribute in no small measure to the nutritional-related disease patterns. Unheeded and untreated, dental disease is progressive and measurable and is directly related to the nutritional health of the individual.

Infant Mortality: While infant mortality rates are improving slightly, they vary greatly among the States and between the low rate for white and orientals and a high rate for blacks and American Indians. Infants with low birth weights are subject to higher than average morbidity and mortality rates. Relatively more babies with low birth weight were born to mothers who were very young, other than white and lived in urban areas. Improved nutrition can increase the probability of an improved outcome of pregnancy thus reducing pregnancy wastage. Recognizing the influence of maternal nutrition on reproductive efficiency, the Committee on Maternal Nutrition, NAS recommended that the importance of adequate diet from the mother's own birth through growth and reproduction should be reaffirmed and that dietary intake and food habits of pregnant women should be reviewed, and appropriate counseling should be provided.

Chronic Health Problems: Nutrition has a significant role in the prevention and treatment of many of the chronic diseases which affect large numbers of all ages in the American population. These include *diabetes* found without complications in one out of every 1,000 registrants upon initial assessment in the Comprehensive Health Services projects for Children and Youth in 1970 and limiting activity of over one-half million persons according to National Health Survey data.

Cardiovascular disease which continues to be the leading cause of death with over 700,000 number of people dying of coronary heart disease/year. Risk factors associated with this disease include diabetes,

hypertension, obesity, and lipid abnormalities which may get their start at a very early age—even infancy. At the present time, management of patients with hyperlipedemia is usually focused on dietary modification as the first step in treatment. Not only is diet counseling required, but changes in food production, processing and regulations may be necessary as well as substantial nutrition education programs directed to all those responsible for establishing sound eating patterns and dietary habits early in life.

Inborn Errors of Metabolism: It has been estimated that inborn errors of metabolism have a high incidence rate in the newborn population. Increasingly sophisticated laboratory tools and developments in genetics are now extending diagnostic horizons of an array of metabolic diseases many of which require immediate and long term dietary management to promote growth and development and prevent disability.

Alcoholism and Drug Addiction: Poor nutritional status is frequently a secondary effect of alcoholism and drug addiction and may require nutritional care and rehabilitation. According to the Federal Bureau of Narcotics, as of December 31, 1968, there were 64,011 active narcotics addicts reported in the United States. Of these, 16.5 percent or 10,609 were females. Infants born to addicted mothers develop withdrawal syndrome which affects appetite and feedings. It is estimated that there are 9 million problem drinkers in America.

C. Changing income and support programs

In 1970, the median income of the American family was $9,870. However, millions of Americans are still poor and in 1970, there were about 25.5 million individual Americans or 13 percent of the population, living in poverty. Nearly one-third of these were children under 18 years of age. Far too many Americans were still finding it difficult to obtain a nutritionally adequate diet as well as the other basic essentials of life.

At the present time, the policy of the Administration is to eliminate the food stamp and commodity distribution programs and substitute cash payment to meet family nutritional needs. This will mean that the family, itself, will then be the major determinant of amount of money spent for food.

Present rules and regulations for AFDC now require that welfare services must provide for the particular needs of families and children, including assistance to parents in money management including consumer education, child rearing, homemaking and housing problems. Although there is limited information available about the actual extent and effectiveness of education programs provided through welfare services, some welfare agencies have developed helpful programs which provide this kind of assistance to large numbers of the families receiving public welfare, e.g. *CHANCE* (Classes in Home Arts, Nutrition and Consumer Education) offered by the City of New York Department of Social Services to improve mothers' standards of household management, health and family care, etc.

In *H.R. 1 The New Social Services Provisions* (*Title V*) defines "services for any individual receiving assistance to needy families with children or receiving services to the aged, blind, and disabled to include nutrition services, educational services, home management,

etc." Additionally in Title XXI of H.R. 1 the Opportunities for Families Program and Family Assistance plan would appear to make provision under Supportive Services for inclusion of nutrition services as a part of health care in order to permit individuals to undertake manpower training and employment.

At the present time the agencies of DHEW (CSA and APA) responsible for administering public assistance and social services programs have little or no nutrition and home economics staff to develop the necessary guidelines and materials, and to evaluate and approve plans projects which provide technical assistance required by the State and local social service agencies. In addition, little in the way of experimental programs is underway by the agencies.

D. Inadequate nutrition services in health programs

It has been assumed that nutritional guidance would be received as part of health care. However, there is inadequate provision for attention to quality and quantity of nutrition services in present and evolving health delivery systems.

Guidelines and standards for the nutrition component of some of the present health programs do exist, e.g., Maternity and Infant Care Projects and Children and Youth Projects under Title V, Medicare and Medicaid under Titles XVLLL and XIX.

However, many of existing health programs administered by DHEW give only limited attention to the nutritional component in their policy and guideline material. For example, family planning grants under Public Law 91–572 could provide a strategic framework in which to deliver nutrition services to women in the child bearing years, yet they give only limited attention to nutrition services as an integral part of health care. Regional medical programs could provide an excellent vehicle for training providers of nutritional care and comprehensive health planning grants offer a unique opportunity to obtain basic planning data which could provide for more sound planning of nutrition services, but there is no nutrition component in guidelines and policies for these grant programs.

Dietetic or nutrition services in hospitals and extended care facilities is required for certification under Medicare. However, nutrition personnel are *not* eligible for payments as providers of health care services. Deficiencies in dietary departments continue to rank fifth or sixth on list of major deficiencies in specified conditions of participation in U.S. Hospitals and Extended Care Facilities certified under Title XVLLL. This indicates a need for dietary consultation to many of these certified facilities.

Neither HMO's or present national health insurance proposals provide for nutrition service as specified health care benefit nor do they give adequate consideration to the role of nutrition personnel as direct providers of care to patients, as providers of technical consultation to care facilities and as trainers of providers of health care. Many of the models being used to develop HMO's etc. have had a limited nutrition component and made little, if any, use of nutrition personnel to deliver nutritional care. According to information compiled by the AMA in 1965, only 224 dietitians (0.4 percent of all allied health personnel involved) were listed as being employed in group practices in the United States. Nutritional service must be a reimbursable item in health care if it is to become a part of the health care system.

The lack of basic planning and management data, necessary for orderly development of plans for and evaluation of the nutrition component of health services makes it difficult to establish performance goals. Some cost figures are available from the Comprehensive Health Services Projects for Children and Youth, but little concrete, factual information is available on kinds and location of nutrition manpower, desirable ratios of nutrition manpower to population and to case load, comparative cost of various delivery systems of nutritional care and cost benefits.

E. Changing patterns in child care and child development services

Day care and preschool programs for children of all ages have been increasing as a result of new legislation, increase in working mothers (projections for 1985 indicate that 6.6 million age 20–44 with children under age 5 will be in labor force), greater recognition of benefits of early educational experience for some children, etc. Since adequate nutrition is essential for sound growth and development of children, nutrition and food services are considered an important component of such programs and funds can be used to provide for such services.

Guidelines and standards for many of the present programs (Headstart, Follow-Through, Parent and Child Centers, Federal Interagency Day Care Requirements, etc.) give some attention to the provision of appropriate meals and snacks to help meet the nutritional needs of children and nutrition education for staff parents, and children. However, the guidelines are so broad and general that they permit a wide range of practice. State health and welfare and education agencies have provided technical assistance in nutrition to many of these day care and preschool programs as a part of their licensing and consultation responsibilities, however, the size of their nutrition staffs has been too limited to meet the extent of need. Many of the centers and programs operate on limited budgets and with untrained food service staffs. The combination of all of these factors means that there is room for considerable improvement of the food and nutrition component of these programs.

H.R. 1 will expand day care services significantly to enable adults to undertake or continue in training, employment, or vocational rehabilitation under FAP. If other legislation pending e.g., Brademas Bill, etc. is enacted, child care and child development services will be further extended.

At the Federal level, the major agencies responsible for these programs, e.g. OCD, CSA, etc. have at the present time limited or no nutrition staff to give adequate attention to this important component of these expending programs and services. Nutrition Consultants in the central and regional offices of MCHS, HSMHA have provided some consultation to these agencies as their workloads permitted. However, no "formal" arrangements regarding sharing of staff, etc. exist between agencies and this has meant that input has not always occurred at most strategic time in planning and program development.

F. Failure to support manpower requirements for nutrition services

The failure to provide adequate funds and manpower for nutrition services also reduces the outreach of health services in the area of nutrition.

The major support of public health nutrition services in State and local health agencies continue to come from Federal sources and matching State monies, primarily Title V funds. While there are about 500 nutrition positions budgeted in State and local health agencies, the nutrition staffing of many of them is still inadequate to deliver quantity and quality of nutritional care needed, e.g., three State health departments do not have even one position budgeted for a full-time public health nutritionist to give leadership and direction to the development and implementation of nutrition services in the total public health program; five State health agencies budget for only *one* public health nutritionist to provide coverage for the entire State.

Positions for nutrition personnel to deliver nutrition services to low-income mothers and children and their families through the Maternity and Infant Care Projects and Comprehensive Health Services Projects for Children and Youth (Title V) are being reduced as funds become limited due to rising medical costs and "fixed" appropriations.

In relation to manpower, definitive data is limited. On basis of program experience many health officials feel that data such as the following indicates a shortage of nutrition manpower which may require more attention in health manpower legislation and its implementation. The vacancy rate in nutrition positions budgeted in State and local health agencies continues to be between 15–20 percent. In an informal (1966) study of Projected Needs for Public Health Nutritionists at State, city and county levels replies from 37 States indicated that present supply would need to be increased by 100 percent. A wide range in ratio of dietitians and nutritionists to population exists in the States, e.g., Utah with 6/100,000 population vs. Massachusetts with 22/100,000. Forty-five States have less than 20/100,000 population. Using a ratio of 1/50,000 population, division of Allied Health Manpower computed that about 4,400 community nutritionists would be needed. PHS–AHA surveys indicated that many openings for dietitians are unfilled. Surveys indicate that an estimated 20,700 dietitians will be needed in hospitals in 1975 compared to approximately 13,000 presently employed.

G. Failure of educational programs to effectively reach target population, or bring about positive nutritional health changes

Dietary behavior is affected by psychological, cultural, environmental and economic factors more than by intellectual knowledge about nutrients and health. Nutrition education, therefore, needs to gear itself to *behavior* rather than just intellectual knowledge about food and nutrients. This is now being done in the context of health education and home economics, curricula and needs to be expanded for inclusion in school food programs, social studies, economics, and other appropriate context areas. Behavioral objectives in nutrition education also need to be done for parents and school staff so that the learning can be reinforced outside the classroom as well as inside.

In the School Health Education Study (1960–63) schools reported that nutrition was an area of emphasis for instruction by the majority of all school districts in every grade K–12; *and yet* it was found to be the area ranking lowest in comprehension among 12th grade students.

Professionals and paraprofessionals who are in a position to have an impact on the nutritional health of people, such as social workers, teachers and medical personnel, are poorly informed about the relationship of food to health or about how to impart this information to their patients/clients in practical terms. "A need for improvement in nutrition teaching is readily acknowledged by many medical schools. . . . The nutrition teaching provided by the various medical specialties is necessarily fragmented; and sometimes superficial." [1]

Food technology and knowledge about nutrition steadily advance, while methods of educating people about these developments remains stagnant. As a result, there is considerable confusion and ignorance among the general public. Food faddists as well as advertisers thrive when people are not equipped to evaluate the myriad messages which they read or see on TV. This ignorance extends to those responsible for policy decisions concerning nutritional health programs and for the food that is made available in the marketplace.

There is fragmentation of effort to educate through Federal programs. OE has more than nine offices administering programs having potential for nutrition components. There is little coordination of these efforts. This fragmentation is duplicated in school systems and the community:

The National School Food Service and Nutrition Education Finance Project found in its survey of school districts no discernible pattern of nutrition education. ". . . a concluding but guarded opinion was that nutrition education in the nation's schools exists more in word than in fact." [2]

HEW has not taken the leadership role in providing guidance for the development of nutrition education programs. HEW is responsible for leadership in improving the nation's health. Through the recommended surveillance and monitoring system, HEW should provide guidance for nutrition education programs to support optimum health. HEW must assume responsibility for leadership for defining nutrition education, reviewing nutrition education in relationship to health status, food technology, new knowledge about nutrition, new methods of education, and communication as well as for influencing policy which governs child and family food programs.

"There is a greater and greater recognition that the scope and the techniques of nutrition education need drastic review." [3] HEW should assume leadership in this review to relate it to health of the American people.

II. Changing food supply and influence of "new foods" on nutrient content of diet

The utilization of foods have changed considerably in recent years and food consumption information as well as recent studies on the utilization of formulated and fabricated foods, suggest that traditional nutritional patterns no longer can provide adequate nutritional support to all segments of the population. An increased dependence

[1] Report of White House Conference on Food, Nutrition and Health. Appendix C. Panel IV-2, p. 167, 168.
[2] National Educational Finance Project. Special Study No. 9. Sept. 17, 1970.
[3] Summary of the Follow-up Conference on Food, Nutrition and Health from the Report of the Follow-up Conference on Food, Nutrition and Health held in Williamsburg, Va., Feb. 5, 1971, p. 25.

on processed foods and the development of fabricated food analogs which will replace traditional foods has potential for reducing the quality of diets. Such fabricated foods because of their price and ease of use, are considered important products for institutional feeding and for feeding programs associated with the provision of health services and social service programs.

The changing food consumption patterns have also made obsolete some of the food fortification and improvement practices initiated by regulations over the last 20 to 30 years. In the past such developments have been initiated by groups outside the Food and Drug Administration. Fortification action has been based on individual reports and directed towards specific health problems. Changes in dietary patterns have reduced the effectiveness of the fortification programs. Because of the lack of basic information on food intake patterns, it has been exceedingly difficult for outside groups to effectively request changes. A more aggressive program utilizing food fortification initiated on the basis of maintaining optimal nutrition in the population is one means of maintaining a better diet in the country.

The current activities of the Food and Drug Administration to establish the nutritional quality of processed foods, and to provide the consumer with labeling to identify the nutrient content of foods is a small start in the direction of improving the diets of all Americans by directed improvement in the nutrient content of many foods in the marketplace.

Section 4

Assumptions

1. It is the assumption of this study committee that DHEW recognizes nutrition as basic to health: nutrition education as a basic component of health education and thus an integral part of any preventive health program.

2. Federal dollars for the nutritional component of health services programs will continue to be a part of the *general* health dollar rather than a categorical item. If special revenue sharing is implemented, nutrition services would still be included as an integral part of the Federal dollar for health.

3. Nutritional care provided as an integral part of primary, secondary and tertiary health care can (a) contribute to the maintenance and improvement of an individual's health, productivity and ultimate economic and social well-being; (b) often defer and modify the development of a disease state so that a clinical condition does not develop and the need for medical and other remedial services which are more expensive types of care is reduced.

4. Some form of family health insurance and improvements in health financing programs will be implemented, e.g., FHIP, HMO's, etc. in near future.

5. That some type of Family Assistance Program will be enacted.

6. That legislation designed to improve the distribution and increase the supply of health personnel will be enacted and will result in more health manpower available to provide nutritional support in health programs.

7. That the educational system is in process of change and its goal of serving children and families better will be supported by programs which will be effective in changing and improving food habits.

8. That basic support for nutrition research will be available, and that nutritional aspects of chronic diseases, growth and development, and optimal health will be considered essential in health research planning.

9. That there will be public interest in and acceptance of nutritional care as a part of preventive health services.

10. That an adequate supply of food is available on a national level.

Section 5

PROPOSED SOLUTIONS (ALTERNATIVES)

In considering the various problem areas, it is apparent that many of the alternatives presented should be considered as options covering limited aspects of the main issue. The proposed activity in regard to providing nutrition service to one segment of the population should be viewed separately from activity suggested as a means for improving food purchasing practices as part of money management. In other cases a series of activities may be required covering several program areas. These are not considered alternatives, but are grouped as options within a single alternative solution.

It was impossible to develop sufficient information on all factors related to each of the alternatives. The committee feels that more complete analysis would be helpful, and calls attention to proposals, which are presented as separate statements before the alternatives, which would establish a working group which could conduct the more extensive evaluation.

There is a continued need for research to better define the nutritional significance of a number of areas such as diet and heart disease, nutritional status and learning ability, and nutritional requirements under stress conditions. Basic research support must continue, and the committee has assumed that this will be true. The concern thus is that mechanisms are available to utilize what we already know, and to put new knowledge into practice as quickly as possible; be it in treatment of disease, education to prevent nutrition problems, or changes in the fortification of foods.

PROPOSAL 1

A nutrition monitoring and surveillance system should be set up to continuously collect, analyze, and distribute nutritionally-related data now being obtained by all Federal nutrition programs' research and service projects, and by national surveys. An integral part of this system would be the data collection and distribution activities of the National Center for Health Statistics as they involve nutritionally related material.

Problem

The objective of a nutrition monitoring and surveillance system is to provide basic information for program planning and offer a con-

tinuous ongoing evaluation of the effectiveness of such programs on both a national and local level. The data collected and evaluated by such a system should be related both to population groups at high nutritional risk (monitoring) and to the general population (surveillance.)

At the present time there are many real and potential sources of data related to nutritional status. The nutrition survey being conducted as part of the ongoing Health Examination Survey (HANES) by the National Center for Health Statistics will provide biannual data on the nutritional status of a random sample of the American population. This data will provide a basis for broad national nutrition programing and evaluation. In addition to this activity provision must be made to monitor the nutritional status of special population groups and in special situations (e.g., migrants, American Indians, pregnant women, iodine status, etc.). Other data, available in a variety of agency structures, should be brought together in such a way as to afford a basis for identifying immediate program needs and continuous evaluation of program effectiveness, particularly for use among special population groups.

Present nutrition data collection has become cumbersome in its sophistication and there is a need for simpler screening examinations that will promote a nutrition component in comprehensive health screening and in office practice. This present complexity, plus a lack of service-orientation of the data, is not responsive enough to the needs of the health care delivery systems.

The solution appears to be a comprehensive nutrition surveillance system to re-define continually the incidence of deficiencies by multiple parameters, to constantly monitor the degrees of risk of specific population groups and to supply practical data bases by which to measure program effectiveness. Such a system should be devloped under the constraint of carefully determined assumptions, some of which would include:

1. New health care delivery systems are imminent and should be planned for as providers and consumers (for evaluative purposes) of nutrition data.

2. The system will monitor multiple parameters and data resources, and collect, collate, and report data on a continuous basis.

3. Initial determination of system objectives will be made together with periodic review by a committee. This should include the determination of the simplest and most inexpensive indicators of nutritional status needed to provide minimal useful data.

4. The system will include data from as many available sources as possible including Federal and State nutrition programs, national surveys, consumer studies, insurance benefits, vital statistics, clinical record, special population studies, epidemiologic investigations, food consumption data and data on food analysis and quality control of food handling.

Program

The staff, consisting of at least statisticians, system analysts, programmers, nutritionists, physicians, and professional writers would produce a monthly or bimonthly report of nutrition status of high risk populations, incidence of related disease, and socio-economic cor-

relations. Such surveillance reports would be given wide distribution to welfare, health, agricultural, industrial, and political agencies at all Government and academic levels. Early detection and warning of critical nutritional profiles would be provided for specific populations and geographic areas. Special data requests would also be accepted.

A review committee of data consumers would regularly screen out impractical and unproductive data processing, while making general policy recommendations concerning handling of specific requests.

There are additional increments of data collection and review available to supplement the basic proposal. These include:

1. Collection of consumer data such as participation in federally financed programs (e.g., free school lunches and breakfast, summer programs, Headstart, commodities distribution, food stamps, and "Meals on Wheels"). Random sampling of commercial food production, processing and sales should also give better insight into the relationship of eating patterns to health.

2. Vital statistics (morbidity and mortality records) from State Health Departments should be assessed and used as one measure of nutritional status of special population groups. Also there is much important data that could be obtained from health departments sponsored clinics, screening programs, institutional licensure, and food inspections.

3. Third-party providers have data that would be invaluable for nutrition surveillance. A pilot effort with the Medicaid files of several States, later adding other States, Medicare, Social Security (death benefits), VA (pensions), and private insurance companies data would would be useful.

4. The collection of clinical data from hospitals and clinics, beginning with Federal facilities, and subsequently other public and private institutions. It would suffice to sample on a random basis, with data coming from each facility for a specified time period. An extension of this approach would involve physician reporting, especially pediatricians, general practitioners, and internists. A scheme of rotating periodic intensive reporting would be effective, particularly if coupled with the development of simple screening techniques.

Surveillance would be enhanced if nutrition screening and reporting were made requirements for HMO funding, as well as for grants such as Neighborhood Health Centers, Model Cities, etc.

5. It is inevitable that some necessary data will be available only if collected by the staff. The piggy-backing of nutrition data collection on other surveys, the use of para-professionals (USDA Extension Service aides, VISTA, etc.) and the stimulation of national volunteer projects (civic clubs, voluntary health agencies, churches) could, with guidance, contribute new valuable data.

Ultimately, there must be teams consisting of nutritionists and epidemiologists to investigate and monitor certain problem areas directly, particularly among high risk populations.

PROPOSAL 2

The OS-DHEW should establish a nutritional health policy to be a guide in the planning, developing, and carrying out programs—health, social service, welfare and education—for which the Depart-

60-843—75——8

ment is responsible. The policy statement should address the Department's responsibility for assuring that optimal nutritional health can be achieved by all segments of the population, and serve to direct attention to the need to consider nutrition support in the development of all health care and education programs.

Various components of the committee's report provide specific aspects of a nutritional health policy:

1. That an important aspect of the health goal of the Department should be optimal nutrition for all members of the population.

2. That nutritional services are an integral part of health services and should be supported in and by all health service programs.

3. That preventive health education programs should provide strong emphasis on nutrition education.

PROPOSAL 3

Establish a Department of Health, Education, and Welfare Nutrition coordinating group, with representation from each agency, to exchange information on the nutritional aspects of programs, coordinate activities which involve several agencies, provide guidance for long term program planning, and prepare each year for the CS a review statement on nutritional health problems based on food and nutrition surveys, program evaluation and reports, and surveillance reports (see Proposal 1). The review statement would serve as a guide to evaluate policy and general program objectives. To provide support for the committee, it is recommended that a person in the Office of the Assistant Secretary for Health be assigned to the committee to serve as an Executive Secretary, assisting the group in developing appropriate review documents, and proposed policy statements.

Provision of Nutrition Services and Support

ALTERNATIVE 1

Since nutrition, home management, and related services are essential to maintain or restore families to self-supporting status and improve family life, and since social services provide a vehicle for the delivery of such to strategic population groups, DHEW should:

(1) Make adequate provision for nutrition and home management services in rules and regulations issued to implement H.R. 1. This would provide for and support State and local agencies allocating some of the funds for social services to the area of nutrition and home management.

(2) Provide the necessary leadership and technical assistance in nutrition and home management by including nutritionists and home economists in the staffing pattern for the central and regional offices of the new agency to be established to administer FAP.

(3) Include training for positions in nutrition and home management as a part of the manpower or work training programs.

(4) Develop immediately several R and D Demonstrations involving various methods of delivering nutrition and home management services to needy families and evaluating their cost and effectiveness which could be used as models including paid inservice type training

for recipients. There is an urgent need for such efforts to begin immediately, so that results can be used in implementing H.R. 1 when it is enacted.

(5) Develop guidelines to State Public Welfare agencies for a program of Social Services including use of aides, homemakers, nutritionists, and home economists to counsel and educate FAP recipients in areas of nutrition and home management, including money management and consumer education, and ultimately influence nutrition and health status of the family.

ALTERNATIVE 2

OCD should take steps to insure that Federal guidelines and standards for child care programs and services make provision for food and nutrition services which are adequate in quality and quantity. Such guideline material should encompass use of funds for food and nutrition service, supervision of food and nutrition services by qualified personnel, nutrition assessment as a part of health evaluation, nutrition education for staff, parents, and children and actual provision of food.

Nutrition Consultants in the central and regional offices of MCHS, HSMHA have provided some consultation to these agencies as their workloads permitted. However, no "formal" arrangements regarding sharing of staff, etc. exist between agencies and this has meant that input has not always occurred at the most strategic time in planning and program development. Since nutrition consultants of MCHS already have on-going working relationships with many of the State and local health agencies responsible for licensing and providing technical assistance to child care agencies, and since nutrition services are an integral part of child health services, there may be merit in developing a formal arrangement with the MCHS for provision of nutrition consultation to OCD central and regional offices.

ALTERNATIVE 3

Providing for more adequate delivery of nutrition services as an integral component of health programs and systems by improved staffing of Federal, State and local health agencies with nutrition personnel who can place, develop and provide such services.

The Committee proposes that one way to bring about the above change would be by making nutrition personnel eligible for payments as providers of health care services and stipulating dietary counseling services as an eligible service for third party payment in national health insurance plans. This would require that *legislation* identify nutritional care as an essential component of preventive health care services and stipulate dietary counseling services as an eligible service for third party payment.

While there is some information available on cost of the nutritional component of care per registrant in the C&Y projects (e.g., total cost per registrant for the provision of comprehensive health care services in fiscal year 1969 was $189, 1.42 percent or $2.69 per registrant was cost of nutritional functional area) more cost data will be needed in order to establish appropriate fees for provider services.

Two additional alternatives were discussed for funding additional personnel:

(1) "Earmarking" a proportion of health funds to Federal, State and local health agencies (to include public health agencies, HMO, hospitals and other health care facilities) for support of nutrition services.

(2) Providing special or formula grants to State and local health agencies for nutrition services using a formula based on population. This alternative would not be in keeping with plans for revenue-sharing and might tend to fragment or separate nutrition services from total health care planning and service.

Both of these appear to be out of step with current programs to provide health care support and the committee does not offer these as possible solutions.

If provision is made for additional support for manpower to provide nutrition services, there will be a need to support training in nutrition for health care personnel. The committee made the assumption that training support would be available, recognizing that such support is currently limited. There was insufficient information available to develop definitive guidelines for staffing different types of health delivery systems. There is a need to test various staffing patterns for delivery of nutrition service in order to provide information on effectiveness, cost, type of personnel, and desirable ratio of manpower to population served.

As a part of this basic alternative, it is suggested that public health nutrition personnel employed under the Emergency Health Personnel Act could be assigned to selected areas of the Nation where there is a serious maldistribution and lack of nutrition personnel, particularly rural and urban areas. Such personnel could be deployed to city and county health departments and other existing health programs and agencies where they would work with other members of health teams.

ALTERNATIVE 4

The Assistant Secretary of Health and Scientific Affairs should require that standards, regulations and policies for health programs developed and administered by DHEW make appropriate provision for nutrition services adequate in quality and quantity.

That the administrator(s) OASPE and HSMHA provide for more nutrition input in planning, developing, and evaluating Health Care Programs and systems in order to assure that nutrition services will be included in such programs and systems.

The committee was not able to develop this recommendation in detail, but proposes that basic information needed for program planning could be obtained by requiring that provision be made for nutrition services in the HMO's (and Family Health Centers) which will be developed with Federal planning grants. This would permit exploration of various methods of providing nutritional care and developing cost-benefit data, etc., which could be used as a base for further planning.

In addition, a mechanism should be developed for involving nutrition personnel in Federal, State and regional health planning teams, task forces, agencies, etc. so that nutrition services are adequately considered in program planning and evaluation efforts.

ALTERNATIVE 5

The administrator of HSMHA should consider staffing regional, area, and central offices of HSMHA agencies with at least the minimum number of public health nutritionists needed to plan the nutrition component of evolving health programs and systems; to develop necessary nutrition guidelines, standards and regulations and enforce them; to evaluate and approve nutrition component of plans and projects and to provide technical assistance to health care providers. To bring staffing level up to two positions/region would require an additional eight public health nutrition consultant positions. An additional eight would be needed to bring staffing pattern up to two per area office of the Indian Health Service. Appropriate nutrition staffing of the central office HSMHA should also be developed. The committee feels such support would be required if the alternatives regarding the provision of nutrition services as part of health care activities is to be adequately developed at the local level.

ALTERNATIVE 6

The Office of Telecommunication Policy, ASPE should explore all aspects of communications as a means for increasing nutrition education outreach to technical personnel and consumers.

In order to reinforce and extend services of nutrition personnel, greater use could be made of communications technology and programmatic content in nutrition could be developed. Specific attention should begin in the National Health Education Foundation, which was stimulated by the administration and which is a channel for accomplishing some of this activity, as would the Regional Medical Programs and Area Health Education Centers. This activity should also be considered in terms of teacher training.

This mass media approach would not completely replace need for well-trained nutrition manpower since many dietary management problems require individualized counseling with periodic reevaluation over an extended period of time.

EDUCATION

ALTERNATIVE 1

In line with the assumption that nutrition is part of any preventive health education program, the committee feels that the Commissioner of OE should identify health, nutrition and mental health education as a priority in support of the President's preventive health program.

This action would be supportive of the Commissioner's priority on education for careers, since beneficial health behavior, integrated by the time a child finishes secondary school, would provide him with basic information and decisionmaking ability to act responsibly about his own and his community's health.

It would also support OE goals of equality of Educational Opportunity:

a. disadvantaged
b. handicapped

Educational Reform

- making better use of schools as the delivery system for strong preventive health education programs based on behavioral objectives, would go a long way toward solving nutrition related health problems listed in Section 3(B), since they could reach all children and their parents over an extended period of time.

ALTERNATIVE 2

Fund a project to develop guidelines for nutritional education (preschool-12) for students, parents and staff based on behavioral goals. (Please read the outline of project proposal which is attached.)

Such guidelines would help to define the broad concept of nutrition education in terms that would make obvious the need for all children to integrate basic information and behavior about food and about community responsibility for nutritional health in to health education. Thus, whether a high school graduate is going to become a homemaker and mother, a wage earner to support a family, a supermarket manager, a member of the health profession, a food producer, an industrialist, a teacher, a legislator, a social worker, an advertising executive—whatever—he will have basic knowledge he needs integrated to allow him to make wise decisions about his own and his community's nutritional health.

It is expected that the guidelines would lead to solutions of some of the other problems identified in relation to nutrition education because they would suggest the need to establish and strengthen nutrition components of health education programs. Examples of how some OE programs might be strengthened follow:

Vocational Education

- might expand some parts of its programs to reach more boys as well as girls in secondary school.
- by providing teachers who have a strong food and nutrition background to act as resource to elementary school teachers.
- by helping to provide training in food and nutrition for paraprofessional staffs of schools, and pre-schools.
- for adult programs and other institutions the guidelines would suggest ways of coordinating parent and child education programs so the learning which takes place at school can be reinforced at home.

EPDA

- might add nutrition/health components to some of its teacher training programs.
- by linking with USDA Child Nutrition funds for nutrition education by linking with Area Health Education Centers. The pending legislation has potential for providing in-service training to school personnel. An advantage of this coordination is that such nutrition education would be health related.

BLET

Projects which support the goals of nutrition and education could be identified and funded in coordination with training projects for teachers, students or parents.

These are merely examples; other programs could make use of the guidelines in helping to find ways to meet the Commissioner's goals.

OCD

The HEAD START materials for nutrition would be compatible with the proposed guidelines. Both would be helpful in planning programs in Day Care. To strengthen Head Start nutrition components, training could be accomplished through vocational education, Health manpower programs and the proposed area Health Education Centers.

It is expected that the guidelines, by focusing on preschool–12, would be helpful to *USDA child nutrition programs* and to educators in becoming aware of how the food service and instructional services can compliment each other in a food nutrition/health education program.

Consideration of research and development projects needed to test the effectiveness of nutrition education would also be made by the guidelines, as would utilization of manpower to implement effective nutrition education programs in schools and with parents as part of preventive health education programs.

OUTLINE OF PROJECT PROPOSAL FOR GUIDELINES FOR NUTRITION EDUCATION

We now realize that nutrition education must include more than learning facts about foods and nutrients . . . just as with health education, generally, nutrition education must concern itself with behavioral changes. These changes involve the integration of thinking, feeling and action, as illustrated by the following examples:

—Whether an 18 year old thinks his body is worth taking care of depends upon his *self-concept* from early childhood.

—Whether he is concerned about others, their hunger and health, may depend upon whether *he feels cared for.*

—Whether he chooses foods for himself and his family which contribute to nutritional health may depend upon his own eating *experiences* he had as he was growing up.

—Whether he makes sensible decisions about foods will depend upon his *ability to think* and his *confidence* to be discriminating.

Because the goal of nutrition education is *to affect the behavior* of the student towards himself, his family and his environment, decision making and ability to make value judgments are equally, if not more important, than content. The process to which a child is exposed in pre-school–12 will greatly influence his (dietary) behavior in adult life.

The Overall Problem

—Changing technology, new knowledge about nutrition, new methods of education, urbanization with resultant dependence upon economic and political systems for meeting basic (food) needs, provide the basis for a statement in the summary of the follow-up conference on Food, Nutrition and Health. "... There

is a greater and greater recognition that the *scope* and the *techniques* of nutrition education need drastic review." [1]

Purpose of the Proposal is to fund a project to review the scope and techniques of nutrition education and to prepare guidelines for nutrition education for *students*, preschool–12, *their parents*, and *school staff*.

Method: Select a committee to:

—Redefine the goals of nutrition education in terms of desired student and parent behavior.

—Review the present scope of nutrition education for students, their parents, and school staff.

—SHES and other curriculum development projects which have nutrition components, as well as HEAD START and Child Nutrition programs will be among the materials reviewed.

—Identify the gaps between where nutrition education is and where it needs to be to achieve stated goals.

—Prepare guidelines for students pre-school–12, parents and staff learning in the area of foods and nutrition. These will include measurable objectives for all three target groups.

—Identify ways to achieve these objectives through the educative process in both a traditional school system and in a changing, learner-centered system of education.

The *Committee* will include students, parents, teachers, nutritionists, and instructional systems specialists.

Time Frame: a project proposal can be developed by November 1, 1971. It is recommended that *Funding* be through ESEA, Title IV. It is estimated that the project will cost no more than $50,000.

Alternatives if Funded: through Title IV, ESEA.

(1) Nutrition and Health Services can implement the project.
   —A full time secretary would need to be added to the staff.
   —Other than that, all cost would be direct for consultant fees, conferences, printing.

(2) A University could carry out the project under monitoring by ESEA Title IV.
   —Costs would probably be a 50% greater due to overhead.

Improvement of Diet Quality

ALTERNATIVE 1

Establish a policy of nutritional quality for foods, which will encourage controlled nutrient improvement of many foods by the addition of nutrients.

While an adequate food supply is available, personal preferences, attractiveness of some food products that are poor nutritionally, and the constant appearance of new foods result in the selection of a poor diet. If most processed foods were required to contain a minimal baseline nutrient level, even those selecting a rather poor restricted diet would receive basic nutrient requirements.

The Department can accomplish such an improvement in food products and make the *suggested policy operational* through the activities of the Food and Drug Administration. In actual practice, the

[1] "Summary of the Follow-up Conference on Food, Nutrition and Health" from the Report of the Follow-up Conference on Food, Nutrition and Health, held in Williamsburg, Va., February 5, 1971, p. 25.

improved nutritional quality would be made a part of food standards, and regulations. The cost of such a program would be small in terms of added operational costs in the FDA. However, it would be necessary to have food intake and nutrition status information available before permitting expansion of fortification in order to prevent excessive intake levels of nutrients. Existing and currently proposed surveillance systems can provide the necessary information, but an evaluation and planning responsibilities must be established.

The current Food, Drug and Cosmetic Act has been interpreted to mean that protection of food quality and safety is key. However, this could be reasonably interpreted to mean that the FDA has a responsibility to initiate actions to assure that the diet of all Americans will provide the nutrient balance necessary for optimal nutrition. It may be necessary to have added legislative authority, however, if the more liberal interpretation of the current laws is not acceptable.

This program will depend on the cooperation of the Federal government and the food industry. Effective change will be accomplished only if the food industry is able to develop acceptable new foods and modified traditional foods with improved nutritional quality. The Food and Drug Administration will be required to establish guidelines and regulations that will protect the consumer from hazard and misleading claims, but permit and in fact require, that the nutritional quality of food be raised when this will benefit the population.

The proposed action would take place over a period of time which would be determined by a number of factors: the ability of the consumer the food industry and the FDA to establish commonly understood principles; the application by FDA of these principles in developing regulations and guidelines; and the development and evaluation of new and reformulated foods by industry.

This proposed action can also be considered in relation to any future Department action to modify the diet of all Americans, or special groups when clearly defined health benefits can be achieved. Such action would only be expected after considerable research effort by groups such as the National Institutes of Health, and careful review by the medical and health agencies within the Department.

Comparison of Alternatives

The proposal and alternatives presented cover many areas, and cannot be easily compared one against another. In discussing each alternative, various aspects of each were evaluated, and modified by the committee in order to provide the most direct response to the major issue, how can DHEW best fulfill its role of assuring of optimal nutritional health to all citizens.

The committee recommends that consideration be given to each alternative by the respective agencies or offices identified in the statement of the alternative.

The committee calls attention to the three proposals listed first, and referred to under the discussion of analytic sub-issues. There is an urgent need to provide leadership to nutritional aspects of health, social service, education, welfare, and regulatory programs. Such leadership by the Department in the development of program guidelines and regulations, increased manpower support and expanded and revised education outreach programs, requires that there is a clear policy recognizing nutrition as an important factor in optimal health.

The committee also feels that the fragmentation of effort, in part due to the lack of a coordinating group, has led to duplication, and a loss of awareness by program staffs of related actions in nutrition and health. The committee members, though all active in various nutrition programs, have no mechanism to share ideas, review results of programs or coordinate activities on a formal and continuing basis. Preparation of position papers, and review of problem issues, such as this report, can be done effectively and efficiently only if some type of coordinating group in DHEW is organized and supported. The committee strongly recommends that consideration be given to the concept offered in Proposal 3.

The first proposal, to establish a scientific evaluation and review unit, and provide, on a continuing basis nutritional status reports, reflects the committee's experience in attempting to bring together information for this report. Basic information is obtained by many programs, and nutrition related data is collected as part of many field surveys and statistic gathering activities. But no one at the present time has the responsibility to bring this information together, review it, evaluate it, and then provide program planners with guidance documents. In order to provide guidance for program planning in relation to short and long term nutritional health requirements, an evaluation capability must be established in the Department.

The alternatives developed is the program areas related to the various aspects of the problem/isssue, are similar in basic design. The committee, recognizing that increases in funds and manpower would probably not be available, and of the opinion that simple expansion of old programs would not aid the Department to assume its role, sought to describe ways that existing or proposed programs could be used to make nutrition in health a factor in the imporvement of health and health care.

The alternatives which the committee most strongly supports are those which would build nutrition into health, social, welfare and education programs as part of regulations and guidelines. In some cases, additional support would be required, but in most cases, funds already provided for service support would offer a ready means to carry out the alternative if appropriate regulations calling for such support were made a part of the agency policy.

The major, and perhaps only adverse reactions could come from those groups and individuals committed to trying to solve nutritional problems with what has been tried in the past. As stated in the description of the problem, nutrition, food, and health problems rapidly undergo change and systems are needed which can identify change, and respond to change in a manner which will have a positive effect on health. By using already available resources, and programs, and seeking manpower and funding support only as it related to identified programs the basic alternative should be attractive to those concerned with not expanding funding levels. The committee feels that much can and should be done through what is already available. If optimal nutritional health is to be the goal, it can be achievel only as part of total programs to provide adequate income, health care, and preventive health education.

Recommendations

The committee recommends that consideration be given to the specific alternatives in each of the program areas. Alternatives related to health programs cannot be considered as possible solutions for education programs, thus the committee does not feel that a list of proposed trade-offs can be given. Instead, the committee desires that each of the alternatives relating to a specific office or agency be taken as a recommendation for that particular aspect of the total problem/issue.

At the present time the lack of coordination and failure of the many groups in the Department to have a common goal in nutrition and health, reduces the effectiveness of the total effort. The three proposals the committee offers are designed to provide the basic foundation for coordinated nutritional health programs as part of the Department's overall program.

The alternatives proposed were selected, in every case because they offered the most reasonable measures to bring about desired change within existing program structure (whenever this was possible).

However, special attention is called to the following alternatives which could provide unique opportunities to make nutrition a living and active part of programs, and not an academic and lifeless lecture subject.

1. Provision of Nutrition Services and Support

Alternative 1.
Alternative 2.
Alternative 3.

2. Education

Alternative 2.

These alternatives could be undertaken with very little increased support. They would require that the Department establish regulations and guidelines for the inclusion of nutritional activity in a number of ongoing programs.

3. Research and Development Efforts

In many of the alternatives, reference is made to the need for research to determine the best method(s) to support and provide nutritional services, and education in nutrition. While these research and development components were not broken out into individual items they are essential aspects of each alternative and should be considered a key to proposed action. The need is to recognize in planning stages, that research and development, with education must be a part of the programs. The committee strongly recommends that research and development efforts in relation to the nutritional aspects of social services, income maintenance, health education, and health services be started as soon as possible. This will provide information necessary to integrate sound nutrition action into existing and planned programs.

FOOD AND DRUG ADMINISTRATION,
Washington, D.C., May 4, 1972.

Reply to Attn. of: BF–120.
Subject: Supplemental Information: Nutrition Study Group Report.
To: Daniel I. Zwick, Special Assistant for Policy Development, Assistant Secretary for Health and Scientific Affairs, HEW.

The attached reports provide the information the committee members were able to develop from available information sources.

In addition, I have attached a memo covering a recent action by the USDA establishing a Committee on Food and Nutrition. A small committee has been working with the OST on a nutrition policy. The USDA representative has been pushing very hard to expand this agency committee approach, and then use the agency committees as points of liaison between departments.

OGDEN C. JOHNSON, Ph.D.
Director,
Division of Nutrition, Bureau of Foods.

Attachments.

(114)

1. Inventory of HEW Programs Affecting Nutrition

There is no current inventory of major HEW programs affecting nutrition. The last inventory was prepared in 1968 by a DHEW Intra-Department Nutrition Council (January 8, 1969 report, pp. 622–635). The most recent summary was prepared for the Department's statement to the Senate Select Committee on Nutrition and Related Human Needs, May 7, 1969.

It would be most timely to develop a current inventory of major HEW programs affecting nutrition. The impetus of any such activity should come from the OS since the information must be collected in a uniform manner, and will require cooperation of nutrition and fiscal personnel since a considerable proportion of HEW dollars being spent for nutrition is hidden in generalized programs and not readily identified as nutrition dollars.

It is estimated that a comprehensive study would require several months at a minimum and several persons full time during that period. This type of review should be done as it would be a first step if any type of coordinated effort were to be undertaken. It would require several months at a minimum, and the identification of several staff persons. The HSMHA has undertaken the development of a work plan related to HSMHA-supported nutrition activities, and one phase of this would be such an inventory for that Agency. The work has not started, but the Center for Disease Control (CDC) was given lead agency responsibility and is expected to carry out the work plan which included both the inventory and assistance in the development of guidelines for nutrition services.

While similar activities are not underway in other HEW units, it should be possible for many units to develop inventories based on the most recent budget reviews and submissions. It is suggested that if competent summer staff consultants could be identified, that this might be an undertaking worth considering for July and August, 1972.

Current HEW Nutrition Activities and Possible Additions

NIH (NHI, NICHHD, NIAMD)—Research, Manpower and Training.

HSMHA—Child Health Programs, Nutrition Program, CDC Surveillance—N.C.H.S. Indian Health, and Community Health Service.

FDA—Research, Regulation—Foods.

SRS—Community Services—Aging.

OS—Model Cities, Consumer Services, Office of Child Development.

OE—Office of Nutrition and Health Services, Home Economics/Health Education, Consumer Education, Follow Through, Migrant Education.

SSA—(*Future—?*), Family Assistance (Welfare Reform, Food Stamps.

HEW Relationships with Other Programs

There appears to be only limited relationships between HEW and the nutrition activities of other Departments. The coordinating activities listed below cover current, and past attempts to provide coordination. It would appear that one major limitation in relation to the development of strong cooperation is the lack of a clearly delineated DHEW policy on nutrition.

a. There existed an agreement between USDHEW and USDA to cooperate all phases of nutrition programs, signed in February 1969 between Secretary Finch and Secretary Hardin. (Copy attached). Actual implementation of the agreement was apparently not undertaken.

b. The Interagency Committee on Nutrition Education, an officially established group meeting once a month to discuss programs related to education, provides an exchange of information, but does not attempt to coordinate programs. The Secretariat for the Committee is located in the USDA. There are at least ten DHEW units with representatives on the Committee. A copy of the Committee program is attached (Attachment A.)

c. The Interagency Committee on Communications in Nutrition Research, an ad hoc group which has representatives from USDA, DHEW and the Department of Defense. DHEW groups represented include FDA; Maternal and Child Health, NCHS; Nutrition Program, CDC, and Indian Health Service, all in HSMHA; and the Institute of Child Health and Human Development, and Arthritis and Metabolic Diseases in NIH.

d. Cooperative programs have been undertaken for special activities and joint statements issued. An example is the joint statement on "Supplementary Food Programs for Low-income Groups Vulnerable to Malnutrition" which was prepared by the Children's Bureau, SRS and CMS, USDA. These ad hoc activities are possible when both organizations are sufficiently aware of each others' programs to recognize the value of cooperation. With only limited contact there is no means to establish such cooperation.

e. The Office of Education has a direct relationship with the USDA program on school lunch and child feeding. The major responsibility remains in USDA.

There are several actions which could be taken to improve the HEW relationships with other Departments in relation to nutrition activities. The first relates to the establishment of a policy in regard to nutrition in the Department. This could not be carried out without an evaluation of current programs. The development of a comprehensive inventory which provided a clear picture of HEW programs would be a valuable step as it could serve to stimulate Agencies in other Departments to review their programs. Program comparisons would offer one means of establishing a point for discussion. Then there should be established a focal point (or points) which could be directed to serve to coordinate activities with related groups in other Agencies.

There still remains the need to have some coordinating force within HEW to provide a general coordination of activities, evaluate the effectiveness of coordinating actions between groups, and provide a

means for calling the Secretary's attention to nutrition problems, programs' successes and failures, and recommending actions which result from cooperative efforts. The committee approach of USDA is one way to accomplish this action, and a similar idea was expressed in the committee's initial report.

Without better internal coordination and the establishment of a Departmental nutrition policy, attempts to develop better external relationships will have only limited success.

RE: FEDERAL GOVERNMENT

I. PURPOSE

Both the U.S. Department of Health, Education, and Welfare, and the U.S. Department of Agriculture having certain responsibilities for Federal nutrition programs, it is hereby agreed that the respective Departments will cooperate with each other in carrying out these responsibilities.

This Memorandum of Agreement sets forth the basic arrangement for said cooperation.

It is understood that said cooperation shall include all phases of the nutrition program, including but not limited to: policies, goals, research, and training and action programs.

II. LIAISON

The Secretary of the U.S. Department of Health, Education, and Welfare and the Secretary of the U.S. Department of Agriculture will each designate a key official in the Office of the Secretary of their respective Departments who will serve as the Department Liaison Officer pursuant to this Agreement. Each Department Liaison Officer will be concerned with: identification of broad policies affecting interdepartmental cooperation; resolution of differences between the Departments, through conferences and other procedures which bring the appropriate program officials together; periodic review of the status of the general agreement and specific agreements; and maintaining a Department repository for all specific agreements made pursuant to this general agreement.

III. SPECIFIC AGREEMENTS

Specific agreements may be negotiated between principal program officials in the U.S. Department of Health, Education, and Welfare and in the U.S. Department of Agriculture pursuant to this general agreement. Such specific agreements should clearly delineate kinds and amounts of services to be rendered by each Department; the types and quantities of personal services, supplies, and equipment and facilities required to perform the agreement; the estimated costs of performing the agreement, including any limitations thereon; the arrangements for reimbursement; and the arrangements for periodic status reports, and a final report on the accomplishment of specific agreements.

Specific agreements shall be reviewed by each Department Liaison Officer prior to execution. Copies of specific agreements shall be given to the respective Liaison Officers.

IV. ANNUAL REVIEW

The Department of Health, Education, and Welfare and the U.S. Department of Agriculture Liaison Officers shall make an annual review during the fourth quarter of each fiscal year to determine the specific agreements to be continued into the following fiscal year and to anticipate any new specific agreements. They will also review the general operations under this Memorandum of Agreement and recommend to the respective Secretaries any changes in the Agreement.

ROBERT H. FINCH,
Secretary of Health, Education, and Welfare.
CLIFFORD M. HARDIN,
Secretary of Agriculture.

BASIC INFORMATION ON THE INTERAGENCY COMMITTEE ON NUTRITIONAL EDUCATION

INTRODUCTION

The Interagency Committee on Nutrition Education, formerly known as the Interagency Committee on Nutrition Education and School Lunch, resulted from the merging of two committees, January 1950. These were the Interagency Committee on School Lunch, with its secretariat provided by the Office of Education, Federal Security Agency, and the Nutrition Planning Committee, with its secretariat provided by the Agricultural Research Service. Both of these committees were organized during the first years of World War II. By the middle of 1949, they had overlapped membership and were discussing related programs, and it seemed expedient to merge and integrate the work of the two. In June 1962, the name was shortened to Interagency Committee on Nutrition Education, inasmuch as the group's chief function in relation to the school lunch program is that of helping maximize the opportunity the program affords for nutrition education.

PURPOSE

To better understand the goals of member agencies and their nutrition-related programs; to stimulate efforts to improve the well-being of people through nutrition education and other activities.

FUNCTIONS

1. Provides the opportunity for member agencies to gain a better understanding of purposes and programs of member agencies through exchange of information and materials, and discussion of common problems.
2. Shares information on current developments, pertinent research and nutrition education through Nutrition Program News and other media.
3. Provides a forum for discussion of issues and problems related to nutrition education.
4. Explores and suggests areas of needed studies, research, and action related to nutrition education for consideration by member agencies.

60-843—75——9

5. Sponsors conferences, workshops, and institutes, and otherwise furthers nutrition education.

6. Maintains communication with State and local nutrition committees.

MEMBERSHIP

The Interagency Committee on Nutrition Education consists of representatives from Government and Quasi-Government agencies that have responsibilities related to nutrition education.

Currently the Committee is made up of one or more members and alternates from each of the following:

Department of Agriculture

Agricultural Research Service
- Consumer and Food Economics Research Division
- Human Nutrition Research Division

Cooperative State Research Service

Extension Service
- Division of Home Economics

Farmers Home Administration
- Operating Loan Division

Food and Nutrition Service
- Nutrition and Technical Services Staff

Foreign Economic Development Service
- Foreign Training Division

Department of Commerce

National Oceanic and Atmospheric Administration
- National Marine Fisheries Service

Department of Health, Education, and Welfare

Office of Child Development
- Bureau of Head Start and Child Development

Office of Education
- Division of Vocational and Technical Education
- Office Nutrition and Health Services

Public Health Service
- Food and Drug Administration
- Health Services and Mental Health Administration
- National Institutes of Health

Social and Rehabilitation Service
- Assistance Payments Administration

Office of Economic Opportunity

Emergency Food and Medical Services Program

American National Red Cross

Office of Food and Nutrition

DECEMBER 17, 1968.

SUPPLEMENTARY FOOD PROGRAM FOR LOW-INCOME GROUPS VULNERABLE TO MALNUTRITION

(A joint statement developed by the Children's Bureau, Social and Rehabilitation Service, U.S. Department of Health, Education, and

Welfare and the Consumer and Marketing Service, U.S. Department of Agriculture.)*

This joint statement concerns a Supplementary Food Program for Low-Income Groups Vulnerable to Malnutrition in which the Department of Health, Education, and Welfare and Office of Economic Opportunity are cooperating with the U.S. Department of Agriculture. Federal, regional, State and local health, education, and welfare programs are urged to cooperate in (1) the identification and authorization of needy persons who require additional food for a health reason, (2) the distribution of supplementary foods to such persons, and (3) concurrent food and nutrition education programs for them and their families.

The primary objective of the program is to make available selected nutritious foods to individuals in vulnerable groups in low-income families who do not have an adequate food supply and who have been identified as needing food for health reasons. Vulnerable groups as defined for this supplemental food program include infants, preschool children (13 months through 5 years), pregnant women, post-partum and nursing mothers, all of whom may be susceptible to nutritional deprivation because of increased nutritional requirements for growth of pregnancy and lactation, or disease states, particularly those related to nutrition.

The specific legal basis or authority for the new program to operate when USDA's Food Stamp Program is operating is found in P.L. 90–463 which is the new appropriation act for the U.S. Department of Agriculture. In other areas the foods will be drawn from those acquired under USDA's price support and surplus removal legislation. For this program USDA funds are available only for food. Additional money needed for storage and distribution costs, educational aspects and clerical needs will have to be obtained from other sources—e.g., county or city government, local Office of Economic Opportunity or Community Action Programs. The Office of Economic Opportunity is actively supporting the program where its Comprehensive Health Care Program exists and is encouraging Community Action Program's to support it in other areas.

The criteria for participation in the program will include both a *health* and a *financial* component. Any individual in a vulnerable group whose need has been identified and who has by a means test that considers age, income, (location and income of parents, if a minor) and employability, been found to be eligible for existing health or welfare programs will be eligible for this new program. Examples of such eligible programs include the Office of Economic Opportunity's Comprehensive Health Services; the Children's Bureau's Maternity and Infant Care Projects Children and Youth Projects and Family Planning Projects; the Indians receiving free medical and health care from the Division of Indian Health; the Food Stamp and Commodity Distribution program participants; those receiving federally aided public or medical assistance; and those who qualify for receipt of health services provided by State, county or local public health services at no fee or substantially free.

*This memorandum supersedes the 1964 joint statement on "Improving the Nutrition of Needy Mothers and Children" prepared by CMS, U.S. Department of Agriculture and the Children's Bureau, U.S. Department of Health, Education, and Welfare.

Eligible individuals will receive food upon the receipt of an appropriate authorization which may be issued by a physician, public health nurse, social worker, nutritionist, or other staff member whom the physician may designate.

The authorization rates and a description of the foods which are to be made available are described in two informational sheets prepared by the USDA and included in the accompanying kit of materials, namely: "Maximum Distribution Rates in Supplemental Food Program for Low-Income Groups Vulnerable to Malnutrition" and a "Descriptive Listing of Supplemental Foods for Low-Income Groups Vulnerable to Malnutrition."

State distributing agencies are authorized to negotiate an approvable plan of operation with State, county or local public health and welfare authorizations. (See "USDA Policies and Procedures.")

HOW TO INITIATE A PROGRAM

In order to initiate a project (1) the State or local health agency should contact the State Director of the Commodity Distribution Program, and also inform the Children's Bureau Nutrition Consultant for their region or (2) the State or local food distributing agency should contact the State or local Director of Public Health or the Director of a Maternity and Infant Care, Children and Youth Project, or Family Planning Project.

OUTREACH EFFORTS

It is important that all organizations concerned with improving the nutritional status of low-income families cooperate in an "outreach effort" to see that the program is accessible and understood by all needy families in the area. Orientation about this new program should be provided for the personnel of all the commuity agencies including agriculture, health, education, welfare agencies, and community action programs.

NUTRITION EDUCATION

To further strengthen this effort it is important for cooperating agencies and groups to plan and carry out a concurrent food and nutrition education program. To assist in this endeavor the Consumer and Marketing Service of USDA and Children's Bureau have developed specific educational materials for this program. These are listed on the order form included in the accompanying kit of materials.

In addition, State and local public health agencies have many good educational materials in maternal and child feeding which might be utilized.

Attached is a kit of informational and educational materials to help you in initiating and developing this program:

—A copy of the USDA Policies and Procedures for the Program
—(CFP (C–D) (Instruction 708) Authorization Rates and Descriptive Listing of Foods for Supplemental Food Program:
—Exhibit A—Maximum Monthly Distribution Rates in Supplemental Food Program for Low-Income Groups Vulnerable to Malnutrition
—Exhibit B—Descriptive Listing of Supplemental Foods for Low-income Groups Vulnerable to Malnutrition

—An authorization form
—A list of the State Food Distribution Directors
—A list of Directors of Nutrition in State and Territorial Public Health Agencies
—Educational materials from U.S. Department of Agriculture and Children's Bureau (See attached list).
Attachments.

3. Data Reporting Systems for Nutrition and Food

The information collected by the National Center for Health Statistics, and accumulated during the course of the Ten State Nutrition Survey, is exceedingly valuable in providing information on the nutritional status of selected segments of a broad cross section of the U.S. population.

The HANES study is a specific time study, using a data collection system and sample design developed for only the one purpose. It is costly, but can be valuable as a major (and perhaps sole) means of establishing baseline data. However, neither the Ten State Nutritional Survey nor the National Center for Health Statistics Survey constitute an operational surveillance system.

What is required is an operational system which makes use of many other sources of health information that can, if properly evaluated, and combined with data from the specific nutrition studies provide the needed continuing guidance for program planning and change. If properly established, most of the basic information is collected as part of other health systems.

Such a surveillance system should be engineered so that it is an acceptable stimulus to remedial action once the mechanism shows that remedies should be applied. What is needed is a system which covers the population, particularly the subpopulation groups at particular risks, tests for the adequacy or inadequacy of nutritional status in relationship to the most critical components of human nutrition, identifies and characterizes the populations suffering from nutritional inadequacies which have genuine and significant implications for the health of the individuals making up that population, and identified changes which result from the institution of remedial action.

4. Steps Needed To Establish and Monitor Uniform Nutritional Standards for HEW Programs

A basic factor in developing and monitoring nutritional standards for HEW Programs is the establishment of a HEW nutrition policy. Without such guidance, uniformity is not possible.

The following actions would provide HEW with a mechanism for establishing and monitoring nutritional standards in pertinent programs:

(a) A "central nutrition mechanism" should be established in Office of Secretary to:

1. review and identify all present DHEW programs with a nutrition component and classify them as to the adequacy of existing nutritional standards and guidelines.

2. work with legislative unit/OS in reviewing all proposed legislation and ensuing regulations in order to assure that provision for nutritional standards are included as appropriate.

3. maintain an up-to-date file on all existing nutrition standards and guidelines of DHEW programs and of all comparable accrediting bodies such as American Hospital Association, American Dietetic Association, etc.

4. review and approve all nutritional standards and guidelines developed for DHEW programs in order to attain some degree of consistency.

5. provide technical assistance to DHEW programs re development of appropriate nutritional standards and guidelines.

(b) Individual program units within DHEW should have major responsibility for the actual development, implementation and monitoring of nutritional standards since nutrition services are delivered as an integral component of a broader program—e.g. health care, child development, educational services, etc. To develop nutritional standards in isolation from total standards could lead to the "nutritional tail wagging the dog." Although developed by individual program units, the review by "central nutrition mechanism/OS" would assure consistency of nutrition standards for all DHEW programs.

5. Nutritional Services of Medicare and Medicaid

Several summaries of the nutrition services under Medicaid have been completed. A rather comprehensive one done a short time ago is attached (Attachment 1). This points out that nutritional services are basically included as part of other major services, but that nutritional service as a separate service is not funded.

In regard to N.H.I.S.A. and F.H.I.P. it appears that a similar pattern will be continued. Dietary services will probably continue to be included in calculating reasonable cost and the state's negotiated rates for in-patient care as under Medicare and Medicaid.

However, the nutrition component of preventive and health maintenance services (including out-patient care) is very much in doubt. Neither HMO's or the present health insurance proposals give adequate consideration to nutrition service as a component of the basic health care plan. Unless the regulations developed for N.H.I.S.A. or F.H.I.P. clearly define nutritionists and nutrition services as a benefit under maternity care, well baby care, out-patient services, medical and other health services, etc., nutritional services as an integral part of comprehensive health care in the nation could become non-existent.

It would appear reasonable to include nutritional services in health plans directed toward prevention of disease (keeping people well) as well as providing health care. As nutrition is one key factor in good health, the provision of nutrition services in preventive health should be part of the health maintenance program. Such services would include:

1. Individual and group counseling.
2. Consultation to group care facilities.
3. Development of nutrition teaching methods.
4. Training and continuing education for nutrition personnel at support level and for professional nutrition personnel.
5. Assessment of nutritional status and food patterns.

NUTRITION SERVICES PROVIDED UNDER TITLE XIX

Four types of nutritional services may be financed under Medicaid:

(1) professional planning and supervision of menus and meal service for patients for whom special diets or dietary restrictions are medically prescribed,

(2) professional nutritional counseling,

(3) preparation of meals for persons who are unable to do so themselves, and

(4) nutritional aspects of screening, diagnosis and treatment.

Nutritional services under Title XIX are included as part of other major services provided; direct Medicaid reimbursement is not available for nutritional services provided as a separate service. Nutritional services are included as part of (1) inpatient hospital care, (2) outpatient hospital care, (3) skilled nursing home care, (4) home health care services, (5) early and periodic screening, diagnosis and treatment, (6) personal care services in a recipient's home, and (7) ICF care. The first five services are required services which States must include in their State Medicaid plans, with home health care services required to be provided to any individual in need of skilled nursing home care. Forty-five States and jurisdictions include home health aide programs in their provision of home health care services, seven States provide personal care services in a recipient's home, and 34 States provide ICF care.

I. INPATIENT HOSPITAL CARE

Provision for diets and food preparation are integral services of inpatient hospital care. Reimbursement for nutrition services is included in the calculations made for inpatient hospital reasonable costs.

II. SNH CARE

Preparation of menus and food and supervision of feeding is also an integral part of SNH care.

Title XIX regulations on provision of dietary services are quite specific. SNH's are required to have professional planning and supervision of menus and meal service for patients for whom special diets or dietary restrictions are medically prescribed. Menus for such persons must be planned and supervised by professional personnel meeting the following qualifications:

(a) A dietician who meets the American Dietetic Association's standards for qualification as dietician, or

(b) A graduate holding at least a bachelor's degree from a university program with major study in food and nutrition; or

(c) A trained food service supervisor, or associate degree dietary technician, or a professional registered nurse, with frequent and regularly scheduled consultation from a dietician or nutritionist meeting the qualifications stated in subdivisions (a) and (b) of this subparagraph.

Special and restricted diet menus are to be kept on file for at least 30 days, notations are to be made of any substitutions or variations in the meal actually served, and the patients to whom the diets are actually served are identified in the dietary records.

Procedures are required which assure that the serving of meals to such patients is supervised and their acceptance by the patient is observed and recorded in the patient's medical record.

Finally, the regulations define a SNH as an institution where food is prepared and served under competent direction, at regular and appropriate times, and where professional consultation is available to assure good nutritional standards and that the dietary needs of the patients are met (45 CFR 249.10) (45 CFR 249.33)

III. OUTPATIENT HOSPITAL CARE

Nutrition services are provided as outpatient hospital services if a dietician is a member of the outpatient clinic staff. In general, nutritional counseling would be provided by large teaching hospitals which tend to have dieticians on their staff to a greater extent than general hospitals.

IV. HOME HEALTH CARE

Under the regulations for home health care services, provision is made for intermittent or part-time nursing furnished by (a) a home health agency or (b) by a professional registered nurse or a licensed practical nurse under the direction of the patient's physician when no home health agency is available. Dietetic counseling can be one of the services offered to the patient along with other medical services provided in the home; for example, dietetic counseling may be given to a diabetic by a visiting nurse along with assistance in insulin management.

Home health care regulations also include provision for home health aides who perform personal care services as outlined by a physician's plan of treatment under the supervision of a professional registered nurse. Personal care services of the home health aide can include assistance in the preparation of food along with help with personal hygiene and administration of medications. However, nutritional services can not be reimbursed separately, i.e., preparation of meals alone would not be a reimbursable service under Title XIX.

V. EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT

The ESDT regulations provide that nutritional aspects of screening, diagnosis and treatment for all Medicaid-eligible children under 21 might be included in a State's ESDT program and that the State Title XIX agency could pay for such services.

VI. OPTIONAL SERVICES

Personal Care

Under Title XIX States may opt to provide personal care services in a recipient's home rendered by a qualified individual where the services are prescribed by a physician in accordance with a plan of treatment and are supervised by a registered nurse (45 CFR 249.10). Seven States include this service under their Medicaid programs.

Personal care services, like those performed by home health aides representing a home health agency, may include assistance with food preparation along with assistance in bathing, walking, etc., but food

preparation cannot be the only service needed by the patient. Personal care services include assistance with personal hygiene, maintenance of a clean environment, preparation and serving of food, and administration of medications. The manual of instruction for the providers of personal care in Oklahoma includes a section on preparation and serving of food with basic nutritional information presented in a non-technical manner.

The primary difference between personal care services and the services which may be provided by a home health aide is that the latter services are provided through a home health services agency and the providers of home health aide services are likely to have had more training. A second difference is that personal care services may include arrangements where live-in providers care for their patients, while home health aide services are generally of short duration.

ICF Care

ICF care includes preparation of meals for persons who are residents of the ICF; these persons are generally unable to prepare their own meals because of their physical or mental condition.

There are at present no Federal ICF requirements for meal planning, preparation or serving. Federal regulations *recommend* that special diet menus be planned by a professionally qualified dietician or be reviewed and approved by the attending physician (45 CFR 234.130).

New Federal regulations are in process of clearance which will substantially upgrade dietary services provided in ICF's. The upgrading of dietary and other ICF requirements is the result of the transfer of the ICF program from APA to MSA effective January 1, 1972.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D.C., March 20, 1972.

SECRETARY'S MEMORANDUM No. 1773

COMMITTEE ON FOOD AND NUTRITION RESEARCH

This memorandum establishes the Committee on Food and Nutrition Research in order to facilitate the discharge of the Department's responsibilities with respect to food and human nutrition.

Functions. The functions of the Committee include the following:

1. To act as a focal point on matters related to food and nutrition research that are of concern to more than one agency of the Department.

2. To assure close working relationships and coordination of activities among Departmental groups concerned with food and nutrition research and those involved in the nutritional aspects of other programs such as school lunch; food distribution; food stamps; and food production, processing, and marketing.

3. To appraise the nutritional implications of current Departmental and related programs, identify research needs, and recommend appropriate food and nutrition research programs.

4. To maintain liaison with other groups or agencies concerned with research or related programs in human nutrition, including

the Food and Nutrition Board of the National Research Council.

Scope. Specific areas of food and nutrition research to be considered by this Committee include the following:

1. Nutrient requirements and interrelationships in man.
2. Biological availability and safe levels of intake in man.
3. Composition and nutritive value of foods.
4. Food consumption and nutrient intakes.
5. Food production as related to nutritive value and naturally occurring toxicants.
6. Storage, processing, distribution, and preparation of foods as related to nutrition value and naturally occurring toxicants.
7. Food economics and marketing.
8. Fortification, modification, and development of new foods.
9. Nutrition education.
10. Effectiveness of public and private food delivery systems as related to food consumption, nutrient intakes and efficiency.

Membership. The Chairman of the Committee will be from Science and Education, and the Vice Chairman will be from the Agricultural Research Service. Other members of the Committee and alternates shall be designated by the Administrator of each member agency, to participate fully in Committee activities, as follows:

Agricultural Research Service—Three members
Consumer and Marketing Service—One member
Cooperative State Research Service—One member
Economic Research Service—One member
Extension Service—One member
Food and Nutrition Service—Three members

Agency representatives shall provide or arrange for information and staff assistance for the Committee as may be needed to deal effectively with activities or reports involving programs and responsibilities of their agencies.

Representatives of other agencies and selected individuals may be invited to attend Committee meetings as deemed appropriate by the Chairman.

The Committee will meet once a month or at the discretion of the Chairman.

All recommendations, reports, or other actions of the Committee will be submitted to the Secretary through the Director of Science and Education.

EARL L. BUTZ,
Secretary of Agriculture.

APPENDIX E

[From the Milling & Baking News, Sept. 23, 1975]

NEW CONTROL OF FARM POLICY DESCRIBED

Don Paarlberg asserts control of farm policy has been lost by old establishment; "new agenda" headed by holding down prices

CLYMER, N.Y., Sept. 22.—"The agricultural establishment has, in large measure, lost control of the farm policy agenda," Don Paarlberg, director of agricultural economics, U.S. Department of Agriculture, acknowledged in an address at the National Public Policy Conference in Clymer Sept. 11. Mr. Paarlberg defined the agricultural establishment as the farm organizations, agricultural committees of the Congress, the Department of Agriculture and the land grant colleges.

Mr. Paarlberg described the "old agenda" of agricultural policy as concerned primarily with commodities and specifically with influencing supplies and prices in the farmer's interest. But, he described a "new agenda" that had been adopted "over the protests of the agricultural establishment." On the new agenda he listed food prices and how to hold them down, various food programs, ecological questions, rural development, land use questions, civil rights and collective bargaining.

Text of Mr. Paarlberg's address follows, in part:

The biggest issue of agricultural policy is this: Who is going to control the farm policy agenda and what subjects will be on it?

As always, whether in the faculty senate at the university or in the halls of Congress, the most important role of leadership is to be able to control the agenda, to lift up certain issues for resolution, and to keep other issues from coming up.

There is an old farm policy agenda and a new one. The old agenda is the one that has long been before us. Here are some of the issues:

How to improve agricultural efficiency? This one is 100 years old.

How to control production and support prices of farm products? This one is 40 years old.

The old agenda is concerned primarily with commodities and specifically with influencing supplies and prices in the farmer's interest. It has long been the agenda of what might be called the agricultural establishment: The farm organizations, the agricultural committees of the Congress, the Department of Agriculture, and the land grant colleges. While these groups do not see all issues alike, they have long been agreed on one thing—that they should be the farm policy decision makers.

Spells Out New Agenda

The new agenda differs radically from the old one, as this listing will clearly show:

- Food prices and specifically how to hold them down, an issue placed on the agenda by the consumers.
- The various food programs which now take up two-thirds of U.S.D.A. budget, so that we are more a Ministry of Food than a Department of Agriculture. This issue was placed on the agenda by what has become known as the hunger lobby.
- Ecological questions, placed on the agenda by the environmentalists.
- Rural development, primarily a program of the 80% of the rural people who are nonfarmers.
- Land use questions, raised by those who oppose the long-held idea that farmers have first claim on the use of land.
- Civil rights, advocated by those who challenge the white male tradition that has long characterized agriculture.
- Collective bargaining for hired farm labor, placed on the agenda by organized labor.

Most of these issues have been placed on the agenda over the protests of the agricultural establishment. The agricultural establishment has, in large measure, lost control of the farm policy agenda. During the past six years I have spent more time on the new agenda than on the old one.

The agricultural establishment has had the ball for 100 years, but sometime during the last 10 years there was a turnover. Not rapid, or clean-cut or dramatic as in a football game. In fact, it has been so gradual that we have not fully realized it. But the initiative has changed hands, none-the-less.

We could spend a lot of time on post-mortems, trying to figure out why the farm policy agenda has been changed. Some will say the change comes from the loss of political power, traceable to the decline in the number of farmers. Others contend that it reflects a change in fundamental mood of the country. Still others believe that pro-farmer programs are only temporarily superseded, that large supplies and low farm prices will reappear, and that the old agenda will be back with us in a year or two.

How should we who are of the agricultural establishment deal with the new agenda?

To make clear the set of value judgments with which I address this question, I indicate here this overall objective:

A free and prosperous agriculture and a food industry that is open and competitive, with assistance for the least fortunate and least able.

With a different objective, no doubt a different analysis would emerge.

Cites Four Possible Strategies

I see four different possible strategies, as follows: hallucination, confrontation, capitulation, cooperation.

HALLUCINATION

We might deceive ourselves into thinking that nothing has changed. Or if things have changed, they will soon return to the status quo ante.

This strategy requires less thinking than any of the others I shall discuss, and so has its attractions. It is akin to the attitude of the loyal subjects in the fable, who professed to be unaware that the emperor was without clothes.

I mentioned earlier that the establishment had lost the farm policy ball. There is one thing worse than losing the ball—that is to lose the ball and think you've still got it.

CONFRONTATION

One way to deal with the new agenda is to challenge, head on, those who put it forward. We would continue to be the advocates of our long-time constituents, to defend the old ground, to repeat the honored rhetoric, and to take direct issue with those who have wrested the farm policy agenda out of our hands. We would recognize that the ball had gone over to the other team, and would consciously play defense.

There is nothing wrong with playing defense. With a good defense you perhaps can protect a lead, and you may be able to recover a fumble.

We would thus oppose the claims of the ecologists, challenge the burgeoning food stamp program, take issue with the consumer advocates, resist the civil rights movement, and declare the rural non-farm people to be the constituents of some other agency. This alternative would be true to our honored past.

But, weak as we are, it would probably result in very few victories. One should not choose confrontation as a strategy unless he has a reasonable chance of winning.

Confrontation Deepens The Issue

There is this trouble with confrontation strategy—that it deepens the issue and makes it more difficult for either party to retreat with honor.

The chances of succeeding with confrontation strategy may not be very great. Our old constituents are fewer in number, despite their undoubted worthiness. And even for them, needs have changed so that the old agenda is less meritorious than it once was.

CAPITULATION

Another way to deal with the new agenda is to accept it, to surrender our traditional views. "If you can't lick them, join them." If there are more people in favor of coyotes than of lambs, side with the coyotes. If the majority of people favor low food prices, go for a cheap food policy. Accept the recent past as a wave of the future.

Not a Good Alternative

There are some farm policy people (not many) who are ready to capitulate. As you can discern, I do not think this is a good alternative.

COOPERATION

We establishment people are like a Congressman who has been redistricted. Earlier he had a good safe district with constituents whose

problems he knew and toward whom he felt sympathetic. Now he has new constituents, whom he did not seek. Their problems are new to him, and the things they want are different from desires of his old constituents.

So some kind of cooperation is called for.

One type of "cooperation" was evident in the passage of the so-called emergency farm bill early this spring. The architects of the old agenda got together with the architects of the new one and worked out a deal. "You support our farm bill and we'll support your food stamps."

So a coalition was formed. From the standpoint of the agricultural establishment, the deal didn't work out so well. The new boys got their food stamps but the old boys didn't get their farm bill. One should beware of joining himself with an overpowerful ally; he may not have much influence on the joint undertakings.

Cooperation involves something more than trying to pool the current desires of people with conflicting interests.

Reaching Out for Consensus

There is another, more constructive form of cooperation. It consists of listening to the other party and reaching out for some degree of consensus. It involves restraining the appetite to some degree.

This past July there was an agricultural research conference at Kansas City, the purpose of which was to plan research for the next decade or two. Present were not only members of the agricultural establishment but also consumers, ecologists, nutritionists, people from the labor unions and civil rights advocates. The meeting was a bit unusual. It was constructive.

The Rural Development Program has reached out to solicit, welcome and acknowledge the contributions of many groups in addition to those of the agricultural establishment. This has worked fairly well. The program is now probably in better shape than it ever has been. Listening to the rural non-farm people has been helpful.

Progress is being made in the civil rights area through cooperation with groups quite outside the agricultural establishment. Agricultural services are increasingly broadened, providing assistance to those who have been inadequately served. Progress has occurred. In general, confrontation has been avoided.

It takes two to cooperate, as it does to tango. We should not assume that if we establishment people reach out with cooperative intent, the architects of the new agenda will automatically reach out in response. They may or they may not. But up to now I think it is fair to say that when we have reached out with sincere intent, there has been a response.

Cooperation is difficult—and risky. Cooperative intent may be interpreted as a sign of weakness, an invitation to be overwhelmed. We cannot expect to dictate the conditions or the terms of the joint effort.

There are two different ideas of government, just as there are two different types of cooperation.

One idea is to group the people on the basis of some criterion, to get into one camp all those who have one particular attribute, say a liking for low prices. Put into another camp all those who have the opposite view. Then hammer out the solution. Obviously, this means clean-cut issues and a head-on slugging match at the highest levels.

Work Out Differences at Lower Levels

Another idea is to work out some of these things at lower levels, so that the differences are not so great when final resolution takes place. Instead of having all the advocates of high prices in one group and all those who favor low prices in another, mix them together a bit, so that they have to work things out among themselves. Cooperation is made necessary, people are impelled to listen as well as to speak, and decision-making takes place at the lower as well as the upper levels. This seems to me a far better system.

The cooperative attitude is beginning to permeate all members of the old agricultural establishment.

The agricultural committees of the Congress are no longer the single-minded advocates of the old agenda which they once were. The cooperative intent is visible in their work on rural development, environmental programs and other current issues.

The Department of Agriculture has changed its official stance on a number of issues. The big commodity programs are a case in point.

The land grant colleges, in their teaching, their research, and their extension, have modified their offerings in the light of changing times.

The farm organizations are also listening. For example, they are now willing to hear proposals which would extend collective bargaining rights to hired farm labor.

Strategies are Mutually Exclusive

I have been speaking of these various strategies as if they were mutually exclusive. This need not be so. It is possible to take an overall attitude of cooperation and still adopt elements of the other strategies in particular cases.

Some issues may best be handled by pretending they don't exist. For example, benign neglect may be the best way of dealing with perennial attacks on the middleman, a subject which is on both the old and new agenda. There is no known solution to this "problem," which objectively measured, is of minor importance. Maybe it can be finessed. The public view is that any issue on the agenda is a legitimate one, and that a solution can be found if men of good will would put their minds to it. One or both of these things may be untrue, in which case it may be best to pretend the issue does not exist.

Though the basic attitude be cooperation, it is perhaps best sometimes to capitulate. An example: the Department of Agriculture had long defended huge commodity payments to a few large farming operations. These payments turned out to be indefensible. So the Department capitulated.

Sometimes confrontation is an appropriate policy, even though the cooperative intent is, overall, the dominant one. President Ford confronted a farmer-labor-consumer coalition in vetoing the Emergency Farm Bill this spring. In my opinion, this was a constructive act of public policy.

Unpredictability "Important Ingredient"

An element of unpredictability is an important ingredient of strategy in the area of public policy. But it should not be the sole element.

To be either totally predictable or totally unpredictable would be a major strategic error.

I began this presentation with the question, "Who is going to control the farm policy agenda and what subjects will be on it?"

My answer to this question is that only if the agricultural establishment takes a generally cooperative attitude can they expect to have much of a role in shaping the farm policy agenda and influencing the particular issues that appear thereon.

Must Address the "New Agenda"

This says something to those of us concerned with research in the policy area. We, as well as the political strategists, will have to take a cooperative role (which many are already doing). There is little good to be accomplished by researching a subject that we are unable to put on the agenda. It is my belief that the marginal contribution to an understanding of the policy issues is greater if we address ourselves to the items on the new agenda than if we continue to focus on the old one.

In extension as well as in teaching, the new constituency will have to be served.

Appendix F

TABLE 1.—LEVELS OF NUTRITIONAL ASSESSMENT FOR INFANTS AND CHILDREN

Level of approach [1]	History		Clinical evaluation	Laboratory evaluation
	Dietary	Medical and socioeconomic		
Birth to 24 months: Minimal	1. Source of iron. 2. Vitamin supplement. 3. Milk intake (type and amount).	1. Birth weight. 2. Length of gestation. 3. Serious or chronic illness. 4. Use of medicines.	1. Body weight and length. 2. Gross defects.	1. Hematocrit. 2. Hemoglobin.
Mid-level	1. Semi-quantitative: (a) Iron-cereal, meat, egg yolks supplement. (b) Energy nutrients. (c) Micronutrients—calcium, niacin, riboflavin, vitamin C. (d) Protein. 2. Food intolerances. 3. Baby foods—processed commercially; home cooked.	1. Family history: Diabetes, tuberculosis. 2. Maternal: height, prenatal care. 3. Infant: Immunizations tuberculin test.	1. Head circumference. 2. Skin color, pallor, turgor. 3. Subcutaneous tissue paucity, excess.	1. RBC morphology. 2. Serum iron. 3. Total iron binding capacity.
In-depth level	1. Quantitative 24-hr recall. 2. Dietary history.	1. Prenatal details. 2. Complications of delivery. 3. Regular health supervision.	1. Cranial bossing. 2. Epyphyseal enlargement. 3. Costochondral beading. 4. Ecchymoses.	4. Sickle cell testing. Same as above, plus vitamin and appropriate enzyme assays; protein and amino acids; hydroxy-proline, etc., should be available.
For ages 2 to 5 years	Determine amount of intake.	Probe about pica; medications.	Add height at all levels; add arm circumference at all levels; add triceps skinfolds at in-depth level.	Add serum lead at mid-level; add serum micronutrients (vitamins A, C, folate, etc.) at in-depth level.
For ages 6 to 12 years	Probe about snack foods; determine whether salt intake is excessive.	Ask about medications taken; drug abuse. Ask about medications taken; drug abuse.	Add blood pressure at mid-level; add description of changes in tongue, skin, eyes for in-depth level.	All of above plus BUN.

[1] It is understood that what is included at a minimal level would also be included or represented at successively more sophisticated levels of approach. However, it may be entirely appropriate to use a minimal level of approach to clinical evaluations and a maximal approach to laboratory evaluations.

Source: From Nutritional Assessment in Health Programs, compiled from proceedings of a conference sponsored by the American Public Health Association, under contract from the Department of Health, Education, and Welfare.

TABLE 2.—LEVELS OF NUTRITIONAL ASSESSMENT FOR ADOLESCENTS

Levels of approach	History		Clinical evaluation	Laboratory evaluation
	Dietary	Medical and socioeconomic		
Minimal level	1. Frequency of use of food groups. 2. Habits-patterns. 3. Snacks. 4. Socioeconomic status.	1. Previous diseases and allergies. 2. Abbreviated system review. 3. Family history.	1. Height. 2. Weight.	1. Urine, protein and sugar. 2. Hemoglobin.
Mid-level	1. Above. 2. Qualitative estimate. 3. 24-hr recall.	1. Above in more detail.	1. Above. 2. Arm circumference. 3. Skinfold thickness. 4. External appearance.	1. Above. 2. Blood taken by vein for albumin (serum), serum iron and TIBC; vitamins A and beta carotene; RBC indices; blood urea nitrogen (BUN); cholesterol; zinc.
In-depth level	1. Above. 2. Quantitative estimte by recall (3 to 7 days).	1. Above.	1. Above. 2. Per ICNND manual. 3. X-ray of wrist and bone density.	1. Above. 2. Blood tests: folate and vitamin C; alkaline phosphatase; RBC transketolase; RBC glutathione; lipids. 3. Urine: creatinine; nitrogen; zinc; thiamine; riboflavin; loading tests (xanthurenic acid/FIGLU). 4. Hair root: DNA; protein; zinc; other metals.

TABLE 3.—LEVELS OF MATERNAL NUTRITIONAL ASSESSMENT

Level of approach	History		Clinical evaluation	Laboratory evaluation
	Dietary	Medical and socioeconomic		
Minimal	Present basic diet; meal patterns; fad or abnormal diets; supplements.	Obstetrical: Age; parity; interval between pregnancies; previous obstetrical history. Medical: Intercurrent diseases and illnesses; drug use; smoking history. Family and social: Size of family; "wanted" pregnancy; socioeconomic status.	Prepregnancy weight, weight gain pattern during pregnancy; signs and symptoms of gross nutritional deficiencies.	Hemoglobin; hematocrit.
Mid-level	The above, plus semiquantitative determination of food intake.	The above, plus occupational patterns; utilization of maternity care and family planning services.	The above, plus screening or intercurrent disease.	The above, plus blood smear; RBC indices; serum iron; sickle preparation.
In-depth level	The above, plus household survey data; dietary history; quantitative 24-hr recall.		The above, plus special anthropometric measurements of skinfold, arm circumference, etc.	The above, plus folate and other vitamin levels.

TABLE 4.—LEVELS OF NUTRITIONAL ASSESSMENT FOR THE ELDERLY

Levels of approach	History		Clinical evaluation	Laboratory evaluation
	Dietary	Medical and socioeconomic		
Minimal	1. Meals eaten per day, week; regularity. 2. Frequency of ingestion of protective foods (4 food groups). 3. Supplemental vitamins, protein concentrates, mineral mixes. 4. General knowledge of nutrition, sources of information.	1. Chronic illness and/or disability; occupational hazard exposure; use of tobacco, alcohol, drugs. 2. Symptoms such as bleeding, fainting, loss of memory, dyspnea, headache, pain, changed bowel and/or bladder habits, altered sight and/or hearing, condition of teeth, and/or dentures. 3. Therapy (prescribed or self-administered) such as drugs, alcohol, vitamins, food fads, prescription items, eyeglasses, hearing aids. 4. Names, addresses, and phone numbers of persons providing medical or health care; close family or friends. 5. Lives alone, with spouse, or companion. 6. Sources of income.	1. Height and weight; cachexia; obesity. 2. Blood pressure, pulse rate and rhythm. 3. Pallor, skin color and texture. 4. Condition of teeth and/or dentures and oral hygiene. 5. Affect during interview and examination. 6. Vision and hearing appraised subjectively and objectively by examiner. 7. Any gross evidence of neglect.	1. Hemoglobin. 2. Blood and/or urine sugar. 3. Urinalysis (color, odor, bile and sediment by gross inspection; pH, glucose, albumin blood, and ketones by stick test. 4. Feces (color, texture, gross blood; occult blood by guaiac test).
Mid-level[1]	In addition to the above: 1. Food preferences and rejections. 2. Overt food fads. 3. Meal preparation facilities and knowledge. 4. Food budget. 5. Usual daily diet: Protective foods (meats, dairy products, fruits and vegetables, cereals); nutrients (protein, fat, carbohydrates, iron, water and fat-soluble vitamins, minerals, trace elements, and water); empty calorie food (alcohol, candy, sucrose).	In addition to the above: 1. Family history of spouse, parents and siblings, other relatives, persons living in same household. 2. Pain: location, frequency, character, duration. 3. Mental hygiene: attitudes, fears, prejudices, symptoms of psychoses, possible psychosomatic symptoms and signs. 4. Income: amount and adequacy for nutrition, housing, health, utilities, clothing, transportation, etc.	In addition include: 1. Head and neck examinations (otoscopic, opthalmoscopic, dental and oral cavity, nose and throat). 2. Chest (inspection, palpation, auscultation and percussion, bi-manual examination of breast tissue). 3. Abdomen (inspection, auscultation, percussion, and palpation). 4. Rectal and pelvic. 5. Inspection and palpation of extremities (evaluation for temperature, edema, pulse, discoloration, ulcers). 6. Gross neurological evaluation; motor and sensory.	In addition include: 1. Serum lipids (including B-lipoproteins. 2. Serum iron and iron binding capacity. 3. Urinalysis. 4. Electrocardiogram. 5. Peripheral blood smear for differtial white blood cell count and red cell morphology. 6. Chest film. 7. Post-voiding residual urine by catheterization (if indicated).

In-depth [1]	In addition include: 1. 24-hr dietary recall, preferably for each of several widely separated days; analysis of nutrient intake; evaluation of adequacy e.g. relate to activity, body weight, laboratory data, affect, etc. 2. History of past and present food preparation and practices. 3. History of dining practices and facilities, including companionship.	In addition include: 1. System review. 2. Social history. 3. Economic history including specifics on sources and amounts of income. 4. Mental evaluation (attitudes toward aging).	If indicated, include: 1. Complete sensory and motor neurologic examination. 2. Sigmoidoscopy. 3. Opthalmologic examination (opthalmoscopic examination with pupils dilated, refraction, dark adaptation, color preception, visual field examination). 4. Audiometry.	If indicated, include: 1. Serum total protein and albumin; serum creatinine and/or blood urea nitrogen (BUN). 2. Roentgenographic evaluation of bones and joints suspected of being fractured, harboring infection and affected by rheumatic and/or metabolic bone disease and/or metastatic or primary neoplastic disease. 3. Glucose tolerance tests. 4. Blood and/or urine vitamin assays for water-soluble and fat-soluble vitamins. 5. Trace element assays of blood, urine, and/or tissue. 6. Kidney-ureter-bladder (KUB) film for stones in urinary tract or gall bladder. 7. Bacteriologic cultures of any chronic infections. 8. Barium enema, upper gastrointestinal series, gall bladder series and intravenous pyelography. 9. Fluoroscopy of chest. 10. Angiography for coronary arteries, aorta, peripheral vessels. 11. Bone marrow for unexplained anemia. 12. Renal clearance studies. 13. Histologic evaluation of biopsies of tissue suspected of being neoplastic.

[1] The aged, quite unlike children and youth, are the end result of lifetimes of physiologic aging, diseases, and disabilities and cannot be evaluated as if they belonged to younger cohorts. In the above table, it is assumed that mid-level evaluation procedures may be carried out in ambulatory care settings and that in-depth level procedures may be conducted as hospital or research procedures. The placement of these in actual practice will depend on availability of facilities and personnel.

APPENDIX G

[From Nutrition Today, March/April 1978]

HOSPITAL MALNUTRITION

No one is certain if hospital induced malnutrition has always been with us and is just now being recognized by newly nutrition conscious physicians or whether it is an unexpected byproduct of the sophisticated food service systems now popular in institutions. Regardless of etiology, hospital malnutrition is a prevalent health problem with serious professional and legal implications. The following instructional essay tells how to recognize undernourished, malnourished, or starving patients. It is the result of the combined effort of two teams of professionals. It was nearly a year in preparation. Its reliable guidelines should be useful in every hospital.

To make this vital information useful to all, this article is also available as a Nutrition Today Teaching Aid.

(By Charles E. Butterworth, M.D. and George L. Blackburn, M.D., Ph.D.*)

Three recent developments make it important that physicians, dietitions, nurses, administrators, and in fact all persons involved in patient care, become aware of the nutritional status of the hospital patient.

First, there is the recognition that an alarming number of people in hospitals are malnourished and that this condition is preventable in many cases.

Second, more and more health professionals are beginning to appreciate the fact that good nutrition plays a major role in wound healing and in heightening resistance to infection.

Lastly, new techniques and products have been developed which greatly enhance the ability to provide nutritional support to the patient.

One might wish to extend this list of developments that call for greater awareness of the nutritional health of hospitalized patients. Among such points would be that because of the level of current food prices it is likely that more poor people and indigent elderly are apt to be undernourished when they enter the hospital. On the other hand, moreover, with the current high costs of hospitalization, there is every incentive for shortening the period of confinement by preventing complications and hastening convalescence, as proper attention to the patients' nutritional health will surely do.

*Dr. Butterworth is Professor of Medicine and Director of the Nutrition Program at the University of Alabama in Birmingham. He also served as Chairman of the Council on Foods and Nutrition of the American Medical Association. Dr. Blackburn is Assistant Professor of Surgery at Harvard Medical School in Cambridge, Mass. and Director of the Nutrition Support Service at the Boston City Hospital and the New England Deaconess Hospital in Boston. The authors desire to point out that this work was a group endeavor and is the result of the application of the extraordinary talents of the staff of the Nutrition Program in Birmingham and the Nutrition Support Service in Boston. Special recognition is due Carlos L. Krumdieck in Birmingham for his contribution of photo material. In Boston, credit is shared by Bruce L. Bistrian, Graham Page, Daniel Sigman and Joseph Vitale.

Our purpose here is to outline some simple and practical methods for the assessment of nutritional status. Most of these can be applied without complicated laboratory equipment and they should be available in hospitals of all sizes, clinics, and even in doctor's offices. Many of the procedures involve nothing more than the application of basic clinical skills, careful inspection of the patient with nutrition in mind, and the use of analytical interviews of the nature described.

No attempt will be made to outline programs of nutritional support or therapy. The major intent here is to suggest methods and guidelines that will make it easier to identify those patients who are in need of nutritional intervention.

Not the least of our purposes in presenting these guidelines is the hope that some of the following suggestions will result in improved systems for dealing with nutrition services in hospitals according to local requirements. As Dr. Meiling aptly pointed out (*Nutrition Today*, May/June 1974), "This (hospital malnutrition) is not only the doctor's and dietitian's problem, it is also the administrator's problem." He also noted that the root cause of hospital induced malnutrition lies in the hospital system and until that's changed, patients are going to suffer.

Rare Curiosities

It is our belief that malnutrition has for too long been identified with the "classical" vitamin deficiency syndromes by physicians and other health professionals. Although these far-advanced syndromes are occasionally encountered and should not be missed, overt vitamin deficiencies are best regarded as rare medical curiosities. By contrast, protein-calorie malnutrition, which henceforward will be referred to by the abbreviation "PCM", which develops in the hospital, has been found to affect from one-fourth to one-half of medical and surgical patients whose illness has required hospitalization for two weeks or more. Therefore, high priority should be given to the identification and prevention of PCM.

Patients with malnutrition, particularly protein-calorie malnutrition, do not tolerate concurrent illness well. They tend to have delayed wound healing and greater susceptibility to infection and other complications so that the period of hospitalization may be considerably prolonged. It is perhaps paradoxical that for twenty-five years or more a certain preoccupation with fluid and electrolytes, vitamins, hormones, and blood gases has appeared to divert the average clinician's attention from two of the most fundamental requirements of every patient: adequate protein and sufficient calories. Why has this occurred? The reason probably is that there is no single anthropometric or biochemical measurement to define the exact extent of PCM.

Nevertheless, as with any other complex pathological process, the patient in whom PCM is suspected, should be evaluated using a number of accurate methods and techniques that have proved both valuable and practical in our experience for the assessment of a patient's nutritional status (and risk). Considerable emphasis will be placed on PCM becauseof the prevalence of the problem. However, it is believed that the procedures to be described are sufficiently comprehensive to permit identification of most of the common nutritional disorders that are likely to be encountered in a hospital population.

It should be a simple matter, except in emergency situations, to obtain rather quickly an estimate of a patient's nutritional health when he is admitted to the hospital. Such an estimate should be an essential part of the admitting process. It can be carried out by the clerical staff, nurses, laboratory personnel or others. In this regard in addition to inquiring as to the patient's usual height and weight, it is essential that the patient should be weighed and his height measured. Asking the patient for this information is not sufficient because, for a variety of reasons, the reply will very likely be inaccurate and two valuable benchmarks of nutritional health will be lost. The actual measurements should be recorded alongside the desirable weight according to some suitable standard such as Metropolitan Life Insurance tables. The physician should bear responsibility for reviewing this information along with admission laboratory work.

Everyone's Duty

It should be the duty of every person involved in the patient's care, to ensure that crucial data are recorded and available for interpretation. Patients at high risk of malnutrition or having particular nutritional problems should be identified within twenty-four hours by a notation made in the patient's permanent hospital record. We believe that this information should be communicated simultaneously and directly to a Nutrition Support Service or to other appropriate authorities having responsibility for this aspect of patient care. But since it is an unusual hospital indeed that has yet organized a Nutrition Support Service, our suggestion is that in the absence of such a service, the matter be referred to the staff member most interested in nutrition and to the dietitians.

The attending physician must bear the ultimate responsibility for determining the patient's nutritional requirements and providing a means to supply them under the circumstances dictated by the clinical situation. His function is catalytic since without his initiative the ancillary resources of the hospital cannot be activated on behalf of the patient. Only on his signal can the special skills of nurses, dietitians, pharmacists and consultants be brought to bear on the problem at hand. If these services are inadequate, the physician resolutely should send the patient to another hospital capable of providing whatever nutritional support services are necessary to sustain the patient during his illness. It is the responsibility of the physician to review promptly all nutrition-related information provided to him by various staff members combined with his own observations and preliminary laboratory results. This should form an important part of the patient's "data base." In the case of problem-oriented records, specific nutrition problems should be itemized on the problem list.

Three Allies

For the assessment of a patient's nutritional status, the physician has three traditional allies: *the history, the physical examination, and the laboratory findings.*

Table 1 represents a check list of the more important points to be covered in the patient's history. As will be seen, the answers to these simple questions can be recorded by paramedical personnel, or family

members, or possibly even by the patient himself. While this list is not exhaustive, it will serve as a screen from which one can spot warning signals. In our experience, even one "Yes" answer should alert the physician and his staff to the presence of a person with a potential nutritional problem. Several affirmative answers immediately suggest the need for special studies, special consultations, and possibly preparation for special support measures.

Part 2 of this table outlines contributions that can be made by members of the dietetic staff. Very often the skilled questioning of an experienced dietitian can uncover unexpected facts about the patient and his food consumption patterns, either under home conditions or under the conditions of the current health problem. Careful inquiry may be necessary to determine if patients truly understand prior dietary instructions and the dietitian should be adept at eliciting these.

Part 3 of the table indicates the contribution that the nursing staff can be called upon to make. In this connection, the need to have regular and accurate recordings of the body weight cannot be overemphasized. Weight is perhaps the most important single piece of information that can be provided as to the patient's nutritional status. The nursing staff is also in a unique position to maintain a constant surveillance of the patient's activities, behavior, and food consumption. Nurses are very careful to take note and record the medicines a patient takes; in some patients, the record of nutrient intake is every bit as important as the notation of drugs he has been given. If our modern hospitals are to be rid of the spectre of hospital induced malnutrition, then at least some method has to be found to note and record how well a patient eats. Whenever a patient is suspected of becoming malnourished, a glance at his finished meal tray is of great importance. The impression is an indispensible part of his hospital record.

The nursing staff's observations of a patient during the entire 24-hour day may provide invaluable information regarding nutrient intake, adherence to dietary instructions, or dietary indiscretions. For example, it can be quite helpful to learn about the midnight snack consumed by the patient on a low calorie diet; the forbidden potato chips and salted peanuts eaten by the patient on a sodium-restricted diet; or the candy bar consumed by the diabetic. Similarly the recognition of surreptitious vomiting has occasionally helped explain an otherwise puzzling case of suspected malabsorption.

Table 2 outlines some of the more prominent physical findings that the physician should look for when he is making a nutritional evaluation. This is where the skilled and experienced eye of the astute clinician is invaluable. Certainly it should be his task to search for physical evidence in suspected problem areas and to correlate physical findings with the history. A conscientious and thorough physical examination for nutritional adequacy or inadequacy should be a routine part of every patient's workup and should require no special indications or justification. The history and physical examination should enable the physician not only to identify existing problems and treat them, but also to anticipate problems and prevent them.

Useful Indicators

Measurement of the tricep skinfold techniques has proven to be a helpful indicator of nutritional status. The proper technique is to

grasp a fold of skin on the posterior aspect of the arm midway between shoulder and elbow, gently pulling it away from the underlying muscle. The caliper is applied and the average of several readings is recorded on the chart. Either Lange or Harpenden calipers are suitable for this purpose, since they are designed to exert uniform pressure over a wide range of thicknesses.

The measurements of height and weight are, by far, the most useful indicators of nutritional status. In many cases they are the only indices available outside the hospital. Although rapid weight loss in a hospitalized patient is an extremely important index of change in protein nutritional status, since it usually reflects use of protein as a metabolic fuel (adipose tissue is lost more slowly owing to its high caloric content), a patient who is grossly obese may be above the desirable weight/height standards, yet suffer extreme protein-calorie malnutrition. Similarly, edema is a common feature in protein-calorie malnutrition and may give falsely high weight readings. Numerous other pathological states may also cause edema and interfere with nutritional assessment. However, edema usually indicates an underlying metabolic malfunction that must be taken into consideration in the overall nutritional assessment.

The choice of scales is most important. Spring balance scales are not sufficiently accurate for this type of work and should not be used. The best type of balance scale is the beam or lever balance type, provided it is checked periodically. We usually weigh patients in indoor clothing. Patients who are unable to stand can be weighed on bed-scales. It is important to weigh patients daily at approximately the same time and under conditions that are as standardized as possible.

Cooperative children and adults are measured against the vertical measuring rod with a headpiece. Shoes are permitted allowing 1-inch heels for men and 2-inch heels for women. The lower border of the orbit should be in the same horizontal plane as the external auditory meatus and the arms should be by the sides. The bar of the headpiece should make contact with the scalp. Uncooperative children and bedridden patients may be measured recumbent using a wooden length board and perpendicular headpiece, or even a tape measure.

For calculation of ideal weight, we use the Metropolitan Life Insurance Company tables of desirable weight according to height and frame derived from the Build and Blood pressure study in 1959 (see Table 4). Appropriate allowances must be made if the patient is not wearing ordinary clothes or shoes.

So far, we have attempted to describe simple clinical procedures that should be widely available. There are a number of routine laboratory procedures available in most hospitals which can also yield remarkably accurate information about nutritional status. The key is merely the adoption of a slightly different perspective and a slightly modified approach to the interpretation of laboratory results. For example, abnormally low levels of prothrombin activity, serum calcium and serum carotene, may each have a separate explanation. Collectively, however, they may well be the result of abnormal fat absorption affecting the functional status of the patient with regard to the fat-soluble vitamins A, D, and K.

We wish to emphasize that there is nothing magical about nutritional assessment and there is no single specific test that will provide

all the answers. Nevertheless simple laboratory procedures available routinely in most hospitals, can yield highly useful information if the physician interprets them in their over-all relationship to the patient's nutritional status.

In addition to the simple tests already mentioned and presented in Table 1, there are a number of specialized procedures to aid in the precise characterization of status with regard to specific nutrients. Some are listed in Table 10. It should be borne in mind that many of these have been designed for screening studies in large populations and may have limited applicability to individual patients under unusual circumstances in the hospital. Recent therapy with minerals, drugs or vitamins may influence the outcome of laboratory studies. Certain antibiotics may inhibit growth of bacteria in bacterial assay systems for vitamins; contraceptive steroid agents may spuriously elevate vitamin A levels, reduce certain metal binding proteins, and lead to lowered circulating levels of folate, vitamin B_{12}, and other vitamins in some cases. Clinical scurvy may exist in the presence of serum ascorbate levels that are only in the "marginal" range. As with virtually all laboratory tests, it is essential to know the vagaries of the procedure, and the clinical implications of the result in relation to a comprehensive analysis of the patient's current situation.

BODILY DEFENSE BREAKDOWN PARAMETERS

The body defenses are divided into 3 main categories.

(1) *Mechanical*—The body is protected from microbial invasion not only by intact epithelial surfaces, but also by mucous barriers, digestive enzymes and excretory antibodies present on such surfaces. These cells like all others, require an adequate supply of nutrients for their growth, turnover, and function.

(2) *Cellular*—Cellular defense mechanisms are mediated by a) lymphocytes and plasma cells, but their exact function and modes of action are not well understood and b) polymorphonuclear leukocytes which have the ability to ingest and destroy bacteria or foreign bodies.

(3) *Humoral*—Humoral defense mechanisms are mediated by gammaglobulins or other plasma proteins which aid in the destruction of micro-organisms. Some antibodies appear in secretions, for example, in tears, colostrum, and intestinal mucus.

There is ample recent evidence that in protein calorie malnutrition, all three defense mechanisms are impaired. Hence, in addition to other serious disorders, the body is open to infection at a time when it is least able to cope with it. Changes in humoral and cellular defenses in protein calorie malnutrition are the subject of considerable research at the moment.

METHODS OF EVALUATING BODILY DEFENSES

A. Quantitatively

(1) *Total white cell count* in a normal person is usually in the range of 5–10,000 per cubic mm.

(2) *Differential Counts*—(*a*) Lymphocytes usually account for 30% of the normal differential white count and they should be present in absolute numbers of at least 1,500/cubic mm. Lower levels indi-

cate impaired cellular defense mechanisms which occur in protein calorie malnutrition.

(*b*) Polymorphonuclear leukocytes usually account for 65% of the total white cell count. With pyogenic infection, a polymorphonuclear leukocytosis occurs and there is an increase in the proportion of non-segmented ("stab") forms. A failure to respond to pyogenic infection with a polymorphonuclear leukocytosis means a poor prognosis, especially in a protein calorie malnutrition.

(3) *Total Protein, Protein Electrophoresis*—Total protein 6–8 gm/100 ml

Albumin 50–65% Total=3.0–4.5 gm/100 ml

Globulin (contains antibodies) 35–51%

Total 3.0–4.5 gm/100 ml

Transferrin (Siderophilin)—A beta-globulin which has been the subject of considerable interest as a parameter to judge protein calorie malnutrition.

The serum concentration of transferrin can be quantitated in the laboratory, but the procedure is not yet widely available. Depressed transferrin levels should be suspected whenever the total iron binding capacity (TIBC) is less than 250 μg%.

Recent work suggests that the plasma proteins synthesized with the highest priority during recovery from PCM are the immunoglobulins. Next in priority are certain coagulation proteins, (prothrombin and proconvertin), pre-albumin, retinol-binding protein, and beta-lipoprotein apopeptide. Albumin, transferrin, and hemoglobin appear somewhat later. Further research is necessary to establish serum transferrin as a useful parameter in the assessment of nutritional status, but early results are encouraging.

B. Qualitatively

(1) *Lymphocyte* quality evaluation can be carried out *in vitro* using a variety of techniques to determine their competency, such as their ability to undergo "blast-transformation" in response to phytohemagglutinin.

(2) *Polymorphonuclear leukocytes* can be qualitatively evaluated by incubating with bacteria to estimate phagocyte activity and killing ability after a certain time using special microscopic techniques. In these experiments, phosphate-depleted white blood cells are unable to migrate toward bacteria, an essential early step in resisting bacterial invasion.

The above tests are at the moment mainly research techniques and are not used in day to day assessments of nutritional status.

(3) *Delayed Hypersensitivity testing using Purified Protein Derivative—(Tuberculin) Candida Albicans extract and Dinitro—Chlorobenzene contact Sensitization tests*

Skin tests are carried out by conventional means utilizing Tuberculin (purified protein derivation), Candida albicans extract (Hollister-Stier) and dinitrochlorobenzene contact sensitization ("DNCB", Catalona technique). In general, a failure to respond with a positive reaction to any of these should be regarded as a possible manifestation of impaired cell-mediated immunity due to PCM. Precise confirma-

tion depends on the existence of either prior reactivity, or the restoration of reactivity upon nutritional repletion.

CATEGORIES OF MALNOURISHED PATIENTS

Essentially three types of protein-calorie malnutrition commonly occur:

1. *Adult kwashiorkor-like state.* A common syndrome is the well-nourished (or over-nourished) individual in whom the combination of severe catabolic stress and sub-standard intake of nutrients combine to depress selectively the level of visceral protein and immunologic competence. As in children, this kwashiorkor-like state evolves from a protein-deficient diet in which the calories delivered are primarily, or exclusively, in the form of carbohydrate. Due to the rapidity of onset, these patients tend to maintain their anthropometric measurements (weight/height, triceps skinfold, and arm circumference) despite severe depression of serum proteins, such as transferrin and albumin. Edema is a common feature because of hypoalbuminemia and altered electrolyte metabolism. Associated with this visceral protein depletion is a depression of cellular immune function as measured by delayed hypersensitivity skin testing, lymphocyte counts, and humoral and leukocyte competence.

2. *Adult marasmus or chronic inanition.* The marasmus-type picture of chronic illness is characterized in adults by decreased anthropometric measurements in the presence of normal serum albumin. It represents a more prolonged and gradual wasting of muscle mass and subcutaneous fat due to inadequate intake of protein and calories. Unlike the kwashiorkor-like state which is dependent upon biochemical assessment for identification, this group of patients may be readily assessed by most anthropometric measurements, or even by visual inspection.

3. *Marasmic "kwashiorkor-like".* This may be regarded as a far-advanced stage of chronic inanition combining some of the clinical features of the other two types. It is an extremely serious, life-threatening situation because of the high risk of complications, infectious and otherwise. The typical patient is one who has mobilized reserves of fat and lean-body mass for a prolonged period in an unsuccessful effort to recover from chronic illness or injury. Ultimately, these reserves are exhausted, or additional catabolic stress occurs. Rapid depression of visceral protein synthesis then supervenes. Clinically, this may be signalled by the onset of hypoalbuminemia, the appearance of edema, decline of immunologic competence and evidence of deterioration in the function of multiple organ systems. The necessity for vigorous nutritional therapy is much more urgent and the care is much more complex in this situation than in either of the other states.

It is of the utmost importance to appreciate these three malnutrition categories in making nutritional assessment in order to develop the required nutritional support plan. Briefly an adult with kwashiorkor has adequate reserves of fat and skeletal muscle that can contribute to his needs, if he is given appropriate amounts of fluid, electrolytes, vitamins, minerals and enough protein to offset obligatory nitrogen losses associated with the illness or injury. Alternative intravenous and post-operative diets have recently been developed which minimize

these losses and conserve visceral protein, by providing an exogenous supply of calories and amino acids.

The adult marasmic patient can benefit from vigorous oral feeding programs, if adequate time is available and if depletion is not far-advanced. Generally speaking, however, patients who are more than 20 or 30% below desirable weight, cannot recover on an ordinary meal pattern and must have aggressive support (such as around-the-clock tube feedings, gastrostromy, or substantial intravenous supplementation.)

The third category of marasmic, "kwashiorkor-like" patients requiries vigorous hyperalimentation, either oral or parenteral or both. Nutritional support must be given promptly, if significant morbidity and mortality are to be avoided.

This has been an attempt to present, in a form suitable for general use, some simple and widely-available procedures for the assessment of nutritional status of hospitalized patients. We are aware that malnutrition is often a complex medical and socio-economic problem, and that our approach may err on the side of over-simplification. Nevertheless it is our hope that more widespread use of even these simple clinical and laboratory methods of assessment will bring about greater appreciation for the importance of good nutrition in the maintenance of health and recovery from illness or injury. Furthermore, it is our conviction that simple adherence to basic diagnostic and therapeutic principles of nutrition will lead to great improvements in the overall quality of health care in our hospitals. More than that!—At times the results will seem nothing short of astonishing.

TABLE 1.—CHECK LIST FOR ASSESSMENT OF NUTRITIONAL STATUS

Part I

(To be completed by trained staff member, physician's assistant, or other)

	Yes	No
Usual body weight 20% above or below desirable?		
Recent loss or gain of 10% of usual body weight?		
Any evidence that income and meals are not adequate for needs?		
More than half of meals eaten away from home?		
Does patient live alone and prepare own meals?		
Ill fitting dentures?		
Excessive use of alcohol?		
Frequent use of fad diets, or monotonous diets?		
Any chronic disease of GI tract? (describe)		
Has there been any surgical procedure on GI tract (other than appendectomy)? (describe)		
Recent major surgery, illness, or injury?		
Recent use of large doses of:		
catabolic steroids?		
immunosuppressants?		
anti-tumor agents?		
anti-convulsants?		
anti-biotics?		
oral contraceptives?		
vitamins?		
other?		
Has patient been maintained more than 10 days on intravenous fluids?		
Any reason to anticipate that patient will be unable to eat for 10 days or longer?		

Is patient known to have:
diabetes? _____
hypertension? _____
hyperlipidemia? _____
coronary artery disease? _____
malabsorption? _____
chronic lung disease? _____
chronic renal disease? _____
chronic liver disease? _____
circulatory problem or heart failure? _____
neurological disorder or paralysis? _____
mental retardation? _____

(Note: If all answers to the above items are "No", the patient may be regarded as a "low-risk" or "acceptable risk." The risk increases in direct proportion to the number of "Yes" answers. Patients with more than 3 "Yes" answers should be considered at an increased risk of developing medical complications, unless special attention is given to providing their nutritional requirements.)

Part II

(To be completed by dietitian)

Description of recent food consumption patterns, eating habits, and meal composition.
Circumstances of food purchase, storage and preparation in the home.
Estimate of daily average caloric consumption.
Estimate of energy expenditure (e.g. low, average, or high level of physical activity).
Estimate of possible nutrient deficiences, based on suspected imbalances.
Food tray viewed.

Part III

(To be completed by nursing staff)

Estimate of actual food consumption, including any provided by non-hospital sources.
Estimate of fluid intake.
Estimate of stool frequency, urinary losses, losses by suction tube, drainage, etc.
Behavior patterns, eccentricities, vomiting (including surreptitious vomiting).
Careful recording of body weight at regular intervals.

TABLE 2.—THE PHYSICAL EXAMINATION

General appearance—obese? skinny?
Head—bossing, deformities, craniotabes (under 1 year old)
Eyes—ophthalmoplegia, cataracts, xerosis, Bitot's spots, retinal hemorrhage, papilledema, night blindness
Mouth—glossitis, gingivitis, caries, periodontal disease, cheilosis, ageusia, dysgeusia
Nose—anosmia, dysosmia, nasolabial seborrhea
Skin—pallor, abnormal pigmentation (carotenemia, hemochromatosis), follicular hyperkeratosis, bruises, peri-follicular petechiae, pellagrous dermatitis, flaky-paint dermatitis, fistulas, status of wound healing, subcutaneous fat and skin-fold thickness, edema
Hair—easy-pluckability, sparseness, depigmentation
Nails—friability, bands and lines
Neck—goiter
Heart—enlargement, high-output failure, resting tachycardia
Lungs—none? Use of accessory muscles to breathe?
Abdomen—enlarged (fatty) liver, distended loops of bowel, ascites, varices
Genito-urinary—secondary sexual characteristics, hypogonadism, delayed onset of puberty
Skeletal—epiphyseal thickening, bowing, rachitic rosary, osteoporosis, frog leg position, tenderness
Muscle—atrophy, wasting, hemorrhage, pain
Joints—effusions, arthralgia
Neurol—foot drop, confabulation, improper position and vibratory sense, hyperreflexia, hyporeflexia, irritability, convulsions

TABLE 3.—EXAMPLES OF SOME "HIGH-RISK" PATIENTS

1. Patients who are grossly overweight, or grossly underweight (the former because of a tendency on the part of some physicians to overlook protein requirements; the latter because of limited protein reserves in organs and lean body mass)

2. Any patient with prior maldigestion, malabsorption, or inadequate nutrient intake, e.g.

a. pancreatic insufficiency

b. celiac disease, Crohn's disease; surgical removal of portions of stomach or small bowel; small bowel by-pass, congenital malformations of GI tract

c. chronic alcoholism, anorexia nervosa; any form of dietary faddism or abuse

d. patients maintained for more than 10 days on simple solutions of glucose and saline

3. Patients with increased metabolic requirements, e.g. fever, infection, trauma, hyperthyroidism, pregnancy, burns, infancy

4. Patients with external losses, e.g. draining fistulas, wounds, abscesses, effusions, exudative enteropathies, chronic blood loss; chronic renal dialysis

5. Any patient who is likely to be unable to consume adequate amounts of food for 10 days (especially if reserves are limited), e.g. head and neck trauma; injury or surgery involving GI tract.

TABLE 4.—DESIRABLE WEIGHTS FOR MEN AND WOMEN

[According to height and frame, ages 25 and over]

Height (in shoes)	Weight in pounds (in indoor clothing)		
	Small frame	Medium frame	Large frame
Men:			
5 ft 2 in	112–120	118–129	126–141
5 ft 3 in	115–123	121–133	129–144
5 ft 4 in	118–126	124–136	132–148
5 ft 5 in	121–129	127–139	135–152
5 ft 6 in	124–133	130–143	138–156
5 ft 7 in	128–137	134–147	142–161
5 ft 8 in	132–141	138–152	147–166
5 ft 9 in	136–145	142–156	151–170
5 ft 10 in	140–150	146–160	155–174
5 ft 11 in	144–154	150–165	159–179
6 ft	148–158	154–170	164–184
6 ft 1 in	152–162	158–175	168–189
6 ft 2 in	156–167	162–180	173–194
6 ft 3 in	160–171	167–185	178–199
6 ft 4 in	164–175	178–190	182–204
Women:			
4 ft 10 in	92–98	96–107	104–119
4 ft 11 in	94–101	98–110	106–122
5 ft	96–104	101–113	109–125
5 ft 1 in	99–107	104–116	112–128
5 ft 2 in	102–110	107–119	115–131
5 ft 3 in	105–113	110–122	118–134
5 ft 4 in	108–116	113–126	121–138
5 ft 5 in	111–119	116–130	125–142
5 ft 6 in	114–123	120–135	129–146
5 ft 7 in	118–127	124–139	133–150
5 ft 8 in	122–131	128–143	137–154
5 ft 9 in	126–135	132–147	141–158
5 ft 10 in	130–140	136–151	145–163
5 ft 11 in	134–144	140–155	149–168
6 ft	138–148	144–159	153–174

Note: 1 in heels for men and 2 in heels for women.

Source: Prepared by the Metropolitan Life Insurance Co. (1960) derived primarily from data of the "Build and Blood Pressure Study 1959."

60–843—75——11

TABLE 5a.—TRICEPS SKIN-FOLD, BIRTH TO 60 MONTHS, SEXES SEPARATE [1]

Age (months)	Triceps skin-fold (millimeter)									
	Standard		90 percent standard		80 percent standard		70 percent standard		60 percent standard	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Birth	6.0	6.5	5.4	5.9	4.8	5.2	4.2	4.6	3.6	3.9
6	10.0	10.0	9.0	9.0	8.0	8.0	7.0	7.0	6.0	6.0
12	10.3	10.2	9.3	9.2	8.2	8.2	7.2	7.1	6.2	6.1
18	10.3	10.2	9.3	9.2	8.2	8.2	7.2	7.1	6.2	6.1
24	10.0	10.1	9.0	9.1	8.0	8.1	7.0	7.1	6.0	6.1
36	9.3	9.7	8.4	8.7	7.5	7.8	6.5	6.8	5.6	5.8
48	9.3	10.2	8.4	9.2	7.5	8.2	6.5	7.2	5.6	6.1
60	9.1	9.4	8.2	8.5	7.3	7.5	6.4	6.6	5.5	5.7

[1] Adapted from Hammond (1955a); Tanner & Whitehouse (1962).

TABLE 5b.—TRICEPS SKIN-FOLD, 5 TO 15 YEARS, SEXES SEPARATE [1]

Age (years)	Triceps skin-fold (millimeter)									
	Standard		90 percent standard		80 percent standard		70 percent standard		60 percent standard	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
5	9.1	9.4	8.2	8.5	7.3	7.5	6.4	6.6	5.5	5.7
6	8.2	9.6	7.4	8.6	6.6	7.7	5.8	6.7	4.9	5.8
7	7.9	9.4	7.1	8.5	6.3	7.5	5.5	6.6	4.7	5.7
8	7.6	10.1	6.8	9.1	6.1	8.1	5.3	7.1	4.5	6.1
9	8.2	10.3	7.4	9.2	6.6	8.2	5.8	7.2	4.9	6.2
10	8.2	10.4	7.4	9.3	6.6	8.3	5.7	7.3	4.9	6.2
11	8.9	10.6	8.1	9.6	7.2	8.5	6.3	7.5	5.4	6.4
12	8.5	10.1	7.6	9.1	6.8	8.1	5.9	7.0	5.1	6.0
13	8.1	10.4	7.3	9.4	6.5	8.3	5.7	7.3	4.9	6.2
14	7.9	11.3	7.1	10.1	6.3	9.0	5.5	7.9	4.8	6.8
15	6.3	11.4	5.7	10.2	5.0	9.1	4.4	8.0	3.8	6.8

[1] Adapted from Hammond (1955a).

TABLE 5c.—TRICEPS SKIN-FOLD, ADULTS SEXES SEPARATE

Sex	Triceps skin-fold (millimeter)				
	Standard	90 percent standard	80 percent standard	70 percent standard	60 percent standard
Male	12.5	11.3	10.0	8.8	7.5
Female	16.5	14.9	13.2	11.6	9.9

TABLE 6a.—ARM CIRCUMFERENCE, 6 TO 17 YEARS, SEXES SEPARATE [1]

Age (years)	Arm circumference (centimeter)									
	Standard		90 percent standard		80 percent standard		70 percent standard		60 percent standard	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
6	17.3	17.3	15.6	15.5	13.8	13.8	12.1	12.1	10.4	10.4
7	17.8	17.8	16.0	16.0	14.2	14.2	12.5	12.5	10.7	10.7
8	18.4	18.4	16.5	16.6	14.7	14.7	12.9	12.9	11.0	11.1
9	19.0	19.1	17.1	17.2	15.2	15.3	13.3	13.4	11.4	11.5
10	19.7	19.9	17.7	17.9	15.8	15.9	13.8	13.9	11.8	11.9
11	20.4	20.7	18.4	18.6	16.3	16.5	14.3	14.5	12.2	12.4
12	21.2	21.5	19.1	19.3	16.9	17.2	14.8	15.0	12.7	12.9
13	22.2	22.4	20.0	20.2	17.7	17.9	15.5	15.7	13.3	13.4
14	23.2	23.2	20.9	20.9	18.6	18.5	16.3	16.2	13.9	13.9
15	25.0	24.4	22.5	22.0	20.0	19.5	17.5	17.1	15.0	14.6
16	26.0	24.7	23.4	22.2	20.8	19.7	18.2	17.3	15.0	14.8
17	26.8	24.9	24.1	22.3	21.4	19.9	18.8	17.4	16.1	14.9

[1] Adapted from O'Brien Girshik & Hunt (1941).

TABLE 6b.—ARM CIRCUMFERENCE, ADULTS SEXES SEPARATE

	Arm circumference (centimeter)				
	Standard	90 percent standard	80 percent standard	70 percent standard	60 percent standard
Male	29.3	26.3	23.4	20.5	17.6
Female	28.5	25.7	22.8	20.0	17.1

Adapted from O'Brien & Shelton (1941). Hertzberg et al (1963).

TABLE 7a.—MID-ARM-MUSCLE CIRCUMFERENCE. 6 TO 60 MONTHS. SEXES SEPARATE

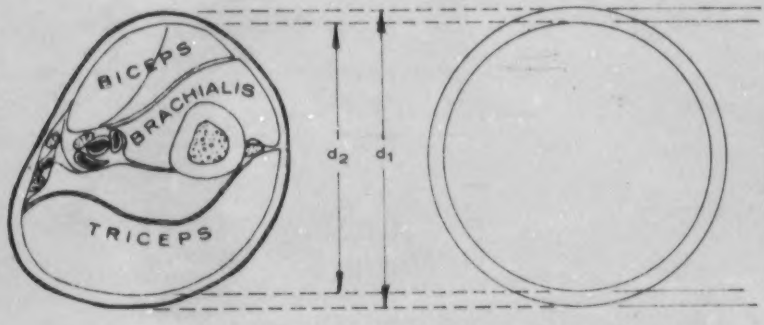
	Mid-arm-muscle circumference (centimeter)									
	Standard		90 percent standard		80 percent standard		70 percent standard		60 percent standard	
Age (months)	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
6	11.4	11.2	10.3	10.1	9.1	9.0	8.0	7.8	6.8	6.7
12	12.7	12.4	11.4	11.2	10.2	9.9	8.9	8.7	7.6	7.4
18	12.9	12.5	11.6	11.3	10.3	10.1	9.0	8.8	7.7	7.6
24	13.1	12.8	11.8	11.5	10.5	10.2	9.2	9.0	7.9	7.7
36	13.3	12.9	12.0	11.6	10.3	10.3	9.3	9.0	8.0	7.7
48	14.0	13.7	12.6	12.3	11.2	11.0	9.8	9.6	8.4	8.2
60	14.1	13.9	12.7	12.5	11.3	11.1	9.9	9.7	8.5	8.3

TABLE 7b.—MUSCLE CIRCUMFERENCE. 6 TO 15 YEARS. SEXES SEPARATE

	Muscle circumference (centimeter)									
	Standard		90 percent standard		80 percent standard		70 percent standard		60 percent standard	
Age (years)	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
6	14.7	14.2	13.2	12.8	11.8	11.4	10.3	9.9	8.8	8.5
7	15.3	14.8	13.8	13.3	12.2	11.8	10.7	10.4	9.2	8.9
8	16.0	15.3	14.4	13.8	12.8	12.8	11.2	10.7	9.6	9.2
9	16.5	15.9	14.9	14.3	13.2	12.7	11.6	11.1	9.9	9.5
10	17.1	16.6	15.4	14.9	13.7	13.3	12.0	11.6	10.3	10.0
11	17.6	17.3	15.8	15.6	14.1	14.1	12.3	12.1	10.6	10.4
12	18.5	18.3	16.6	16.5	14.8	14.6	12.9	12.8	11.1	11.0
13	19.6	19.1	17.6	17.2	15.7	15.3	13.7	13.4	11.8	11.5
14	20.8	19.6	18.7	17.6	16.6	15.7	14.6	13.7	12.5	11.8
15	23.0	20.8	20.7	18.7	18.4	16.6	16.1	14.6	13.8	12.5

TABLE 7c.—MUSCLE CIRCUMFERENCE. ADULTS. SEXES SEPARATE

Sex	Muscle circumference (centimeter)				
	Standard	90 percent standard	80 percent standard	70 percent standard	60 percent standard
Male	25.3	22.8	20.2	17.7	15.2
Female	23.2	20.9	18.6	16.2	13.9



This reflects both caloric adequacy and muscle mass.

We have found the mid upper arm to be the most useful place and to give the optimal results. A soft tape measure calibrated in cm is used. It is placed around the left arm of its mid point (in the same place as previously described for triceps skinfold). It should be firmly wrapped around, but without compression of the underlying muscle.

Calculation of Mid-Upper-Arm-Muscle Circumference

This is derived from the mid upper arm circumference by means of a formula (from Jelliffe, 1966). (The diameter of the humerus is assumed to be constant.)

C_1 = mid upper arm circumference in cm
S = triceps skinfold in cm
d_1 = arm diameter
d_2 = muscle diameter
r = radius

Skinfold $S = 2 \times$ subcutaneous fat
$= d_1 - d_2$

Circumference $C_1 = 2\pi r$
$= \pi d_1$

Muscle Circumference $C_2 = 2\pi$ cm
$= \pi d_2$ cm
$= \pi(d_1 - (d_1 - d_2))$ cm
$= \pi d_1 - \pi(d_1 - d_2)$ cm
$= C_1 - \pi$ S cm

TABLE 8.—REFERENCE TABLE FOR MEN OF IDEAL WEIGHT FOR THEIR HEIGHT OF URINARY CREATININE/CM BODY HEIGHT

[Creatinine coefficient—23 mg/kg/body weight]

Height			Medium frame, ideal weight		Total milligrams creatinine/24 hr	Milligrams creatinine/centimeter body height/24 hr
Feet	Inches	Centimeters	Pounds	Kilograms		
5	2	157.5	124	56.0	1,288	8.17
5	3	160.0	127	57.6	1,325	8.28
5	4	162.6	130	59.1	1,359	8.36
5	5	165.1	133	60.3	1,386	8.40
5	6	167.6	137	62.0	1,426	8.51
5	7	170.2	141	63.8	1,467	8.62
5	8	172.7	145	65.8	1,513	8.76
5	9	175.3	149	67.6	1,555	8.86
5	10	177.8	153	69.4	1,596	8.98
5	11	180.3	158	71.4	1,642	9.11
6	0	182.9	162	73.5	1,691	9.24
6	1	185.4	167	75.6	1,739	9.38
6	2	188.0	171	77.6	1,785	9.49
6	3	190.5	176	79.6	1,831	9.61
6	4	193.0	181	82.2	1,891	9.80

TABLE 9.—REFERENCE TABLE FOR WOMEN OF IDEAL WEIGHT FOR THEIR HEIGHT OF URINARY CREATININE/CM BODY HEIGHT

[Creatinine coefficient—18 mg/kg/body weight]

Height			Medium frame, ideal weight		Total milligrams creatinine/24 hr	Milligrams creatinine/centimeter body height/24 hr
Feet	Inches	Centimeters	Pounds	Kilograms		
4	10	147.3	101.5	46.1	830	5.63
4	11	149.9	104.0	47.3	851	5.68
5	0	152.4	107.0	48.6	875	5.74
5	1	154.9	110.0	50.0	900	5.81
5	2	157.5	113.0	51.4	925	5.87
5	3	160.0	116.0	52.7	949	5.93
5	4	162.6	119.5	54.3	977	6.01
5	5	165.1	123.0	55.9	1,006	6.09
5	6	167.6	127.5	58.0	1,044	6.23
5	7	170.2	131.5	59.8	1,076	6.32
5	8	172.7	135.5	61.6	1,109	6.42
5	9	175.3	139.5	63.4	1,141	6.51
5	10	177.8	143.5	65.2	1,174	6.60
5	11	180.3	147.5	67.0	1,206	6.69
6	0	182.9	151.5	68.9	1,240	6.78

TABLE 10.—SPECIAL LABORATORY TESTS OF VALUE IN NUTRITIONAL ASSESSMENT

Nutrient and units	Age of subject (years)	Deficient	Criteria of status marginal	Acceptable
Serum ascorbic acid [1] (mg/100 ml)	All ages	Up to 0.1	0.1–0.19	0.2 plus.
Plasma vitamin A [1] (mcg/100 ml)	do	Up to 10	10–19	20 plus.
Plasma carotene (mcg/100 ml) [1]	do	Up to 20	20–39	40 plus.
	Pregnant		40–79	80 plus.
Serum folacin [2] (ng/ml)	All ages	Up to 2	2.1–5.9	6.0 plus.
Serum vitamin B_{12} [2] (pg/ml)	do	Up to 100		100 plus.
Thiamine in urine (mcg/g creatinine) [1]	1 to 3	Up to 120	120–175	175 plus.
	4 to 5	Up to 85	85–120	120 plus.
	6 to 9	Up to 70	70–180	180 plus.
	10 to 15	Up to 55	55–150	150 plus.
	16 plus	Up to 27	27–65	65 plus.
	Pregnant	Up to 21	21–49	50 plus.
Riboflavin in urine (mcg/g creatinine) [1]	1 to 3	Up to 150	150–199	500 plus.
	4 to 5	Up to 100	100–299	300 plus.
	6 to 9	Up to 85	85–269	270 plus.
	10 to 16	Up to 70	70–199	200 plus.
	16 plus	Up to 27	27–79	80 plus.
	Pregnant	Up to 30	30–89	90 plus.
RBC Transketolase-TPP-effect (ratio) [2]	All ages	25 plus	15–25	Up to 15.
RBC glutathione reductase-FAD-effect (ratio) [2]	do	12 plus		Up to 1.2.
Tryptophan Load (mg Xanthurenic acid excreted) [2]	Adults: (dose: 100 mg/kg body weight).	25+ (6 hr)		Up to 25.
		75+ (24 hr)		Up to 75.
Urinary pyridoxine [2] (mcg/g creatinine)	1 to 3	Up to 90		90 plus.
	4 to 6	Up to 80		80 plus.
	7 to 9	Up to 60		60 plus.
	10 to 12	Up to 40		40 plus.
	13 to 15	Up to 30		30 plus.
	16 plus	Up to 20		20 plus.
Urinary n'methyl nicotinamide [1] (mg/g creatinine)	All ages	Up to 0.2	0.2–5.59	0.6 plus.
	Pregnant	Up to 0.8	0.8–2.49	2.5 plus.
Urinary pantothenic acid (mcg) [2]	All ages	Up to 200		200 plus.
Plasma vitamin E (mg/100 ml) [2]	do	Up to 0.2	0.2–0.6	0.6 plus.

[1] Adapted from the 10 State Nutrition Survey.
[2] Criteria may vary with different methodology.

Source: Derived from Table of Current Guidelines for Criteria. Nutritional Status for Laboratory Evaluation in Nutritional Assessment in Health Programs. Am J. Public Health (Supp.) 63: 34, 1973, G. Christakis, editor. Also see: Sauberlich, H. E., Dowdy, R. P. and Skala, J. H. Laboratory Tests for the Assessment of Nutritional Status. Critical Reviews, Clinical Laboratory Science 4: 215-340, 1973.

APPENDIX H

[From the Lutheran General Hospital, Park Ridge, Ill.]

OUTPATIENT NUTRITION COUNSELING

The Nutrition Section of Lutheran General Hospital is providing individualized diet counseling on an outpatient basis. During these counseling sessions, a clinical nutritionist evaluates medical background she receives from your office and a nutrition history she obtains from your patient to develop a diet modification program geared to your patient's individual needs and preferences. To meet basic needs of nutritional care, as well as to evaluate the patient's understanding and ability to manage his diet, we include at least one follow-up session with the patient after his initial diet instruction.

Eligibility

Patients are eligible for diet counseling by physician referral. Counseling is available for any diet modification. It is geared to assist the patient to assume responsibility for his diet through understanding the reasons for the modifications, and the results he can expect from adhering to the program outlined for him. Teaching tools have been developed which correlate his physical condition with the prescribed modifications. Diet lists of "do's and don'ts" are not given out without supportive counseling.

Appointment Times

Monday thru Thursday, 7:30 A.M. to 8:30 P.M.
Friday, 7 to 5:30. 2 Saturdays per month.

Appointment Scheduling

Your patient must make his appointment through Outpatient Registration (COR) 696–5050. COR will furnish the patient with information regarding available appointment hours, location of the outpatient nutrition office and fees for counseling. If necessary, cancellations must be made 24 hours prior to the scheduled appointment time.

Referral Notes

To assist us in making an initial assessment of your patient's nutrition needs, we request results of any pertinent, recent lab work you may have on file for your patient. The accompanying Requisition Form can be used to record this information. This form also explains to your patient how he may obtain appointments. These can be obtained in pad form from the nutrition office (696–6138).

After each patient appointment, you will receive a note from the nutritionist which will assess your patient's past food intake, provide specific information on the type of diet the patient will be following and evaluate the patient's motivation and comprehension of the diet. This note will also advise you of further appointments and nutritional care we have planned with your patient.

Group Discussions

Discussion groups are being conducted on the following diets:

Diabetes
Type IIA Hyperlipidemia—Low Cholesterol
Type IV Hyperlipidemia
2 gm Na^+

We request one individual counseling session with the patient before he participates in these group meetings, at which time he can obtain detailed information about dates, times and meeting places.

LUTHERAN GENERAL HOSPITAL
OUTPATIENT NUTRITION COUNSELING

Name: _____
Diet recommendation: _____
Dr. _____ M.D.

By appointment *only*. Appointments for individual diet counseling and Group Discussions can be scheduled through Outpatient Registration by calling 696–5050. DO NOT call the Nutrition Section for scheduling assistance. You may obtain the schedule of fees from Outpatient Registration.

Diagnosis: _____ Blood pressure: _____
Medication: _____
Profile B
Date: _____
Cholesterol _____
Triglycerides _____
Serum _____
Type _____

GTT	FBS		Urine
Date: _____	½ hr.	_____	_____
	1 hr.	_____	_____
	2 hr.	_____	_____
	3 hr.	_____	_____
	4 hr.	_____	_____
	5 hr.	_____	_____
	6 hr.	_____	_____

Others, if pertinent to diagnosis:
BUN _____
Uric Acid _____
HGB _____
Others _____

APPENDIX I

THE LIBRARY OF CONGRESS,
LEGISLATIVE REFERENCE SERVICE,
Washington, D.C., September 23, 1975.

To: Senate Nutrition Committee. Attention: Nick Mottern.
From: Education and Public Welfare Division.
Subject: Community Health Service centers programs and requirements for the provision of nutrition services.

This is in response to your request for information regarding the various Community Health Service centers programs supported by the Department of Health, Education, and Welfare and whether nutritional services are required to be provided by these programs. Programs surveyed include the following:

(1) One hundred fifty-seven operational *community health centers*, which include neighborhood health centers, family health centers, and community health networks, provided a range of preventive, curative, and rehabilitative ambulatory services and arranged for inpatient services to an estimated 1,425,000 persons in 1975. These programs are located in rural and urban areas of medical underservice. Neither the original authorizing legislation nor program guidelines explicitly require that nutritional services be offered by these centers. It should be noted that a revision of the community health center authority contained in Public Law 94–63 specifies that a center provide a number of primary health services and supplemental health services which are necessary for the adequate support of primary health services and appropriate to the particular center. The newly enacted legislation (July 29, 1975) further specifies that supplemental health services can include "public health services (including nutrition education and social services)."

(2) Ninety-six grants supported 105 *migrant health projects* which served approximately 390,000 migrant agricultural workers and seasonal farmworkers and their families in 1975. Services provided range from a full complement of diagnostic, therapeutic, and followup medical services to a more limited focus on specific diseases. Neither the original authorizing legislation nor program regulations explicitly require that nutritional services be offered by these centers. As for the community health center program, it should be noted that a revision of the migrant health program contained in Public Law 94–63 specifies that a center provide a number of primary health services and such supplemental health services as may be necessary and as may be appropriate to the particular center for the adequate support of primary health services. This newly enacted legislation further specifies that supplemental health services can include "public health services (including nutrition education and social services)."

(3) About 300 project grants supporting over 3,600 *family planning clinics* provided services to more than 2 million women in 1975. Serv-

ices include comprehensive family planning medical, educational, and social services. In providing these services, priority is given to those who cannot afford them. Neither the original authorizing legislation, program regulations, nor a revision of the family planning projects explicitly requires that nutritional services be offered.

(4) Approximately 520 *community mental health centers* provided services to about 1.57 million individuals in 1975. Mental health services provided by these centers include inpatient services, outpatient services, partial hospitalization; emergency services; and consultation and education services for a wide range of individuals and entities involved with mental health services, including health professionals, schools, law enforcement and correctional agencies, public welfare agencies. The services of the center must be available to all persons in the community, without regard to ability to pay. Neither the original authorizing legislation, program regulations, nor the revision of this program contained in Public Law 94–63 requires that nutritional services be offered by community mental health centers.

(5) Approximately 500 project grants for *community alcohol programs* provided services to about 176,000 individuals in 1975. These programs provide alcoholism treatment, rehabilitation, and prevention services to special population groups such as poverty populations, Indians, drinking drivers, public inebriates, and employed alcoholics. Neither the original authorizing legislation nor program regulations require that nutritional services be offered.

I hope this information is helpful. If you require further assistance, please don't hesitate to call.

RICHARD PRICE.

APPENDIX J

NUTRITION PROGRAMS IN STATE HEALTH AGENCIES

(By Milton Z. Nichaman, M.D. and Gretchen E. Collins*)

Key Words: State health agencies, nutritionists, surveillance, standards, consultation, applied human research.

A recent survey of nutrition programs in State health agencies [1] revealed a wide variation in numbers of nutrition positions, training and experience requirements, and in the administrative placement of the nutrition activity. Replies were received from 50 States, the District of Columbia, Guam, Trust Territories of the Pacific Islands, Puerto Rico and the Virgin Islands.

Forty respondents indicated nutrition was a separate unit; the number of full time positions in these units varied from 1 to 35. In addition to the 173 nutritionists in identifiable nutrition units it was reported that there were 53 positions in Health Care Facilities (Nursing Home Consultant, Hospital Consultant, etc.), 8 in Chronic Disease Programs, 54 in Maternal and Child Health Programs, and 125 in "other" programs.

NUMBER OF STATE AND TERRITORIAL NUTRITION POSITIONS BUDGETED AND FILLED, MAY 1973

Number of positions budgeted per State and territory	Number of States and territories reporting	Total number of positions budgeted	Positions vacant
No positions	2		
1 to 3	14	27	4
4 to 6	17	83	10
7 to 9	6	47	4
10 to 20	12	160	21
Over 20	4	179	12
Total	55	496	51

[1] Includes 32 part-time positions.

*Dr. Nichaman is Chief, Preventable Diseases and Nutrition Activity at the Center for Disease Control, Atlanta, Ga. Miss Collins is a Nutritionist with this unit.

[1] Nutrition Directory, State Health Agencies and Graduate Programs of Public Health Nutrition, Center for Disease Control, 1973. DHEW.

Source: *Journal of the American Dietetic Association*, vol. 65, July 1964.

ADMINISTRATIVE LOCATION AND NUMBER OF NUTRITIONISTS REPORTED TO BE EMPLOYED IN STATE AND TERRITORIAL HEALTH AGENCIES—MAY 1973[1]

Number of nutritional positions	Number of States and territories reporting	Total number of nutritionists in reporting States and territories	Number and location of nutritionists				
			Separate nutrition unit	Health care facilities	Chronic diseases	Maternal and child health	Other
None	3						
1 to 3	24	48	25	10	1	8	4
4 to 6	11	57	21	16	5	8	7
7 to 9	8	66	37	14	1	5	9
10 to 20	5	75	36	5		1	33
Over 20	4	167	54	8	1	32	72
Total	55	413	173	53	8	54	125

[1] Excludes part-time nutritionists and vacancies.

A large proportion of the time of nutritionists at the State level is spent in providing consultation to other personnel in the agency to local health department personnel, and to non-agency personnel concerned with nutrition and health such as teachers, agricultural workers and welfare employees. Depending upon the individual State structure, considerable time also may be devoted to various group care facilities. In general direct patient counseling is provided by local departments or by local clinic staff.

The multiplicity of roles that public health nutritionists have identified as their areas of responsibility and the problems they have encountered in evaluating and clearly reporting program activity have made it difficult for administrators and legislators to appreciate properly the value of nutrition services to the health care system. This in turn often results in allocation of inadequate staff and financial support.

There is no question that the activities being carried out by the nutritionists in State health agencies are worthwhile. The question is, however, are these activities in areas that should receive priority. Somehow there must be developed an understanding and acceptance by the policy making and program planning groups that nutrition services must be included in the initial plan for programs designed to maintain optimum health.

This cannot be achieved if nutrition services are tied to categorical funding. Neither can it be done if the nutritionist is not involved in the planning process. Identifying nutrition as a separate unit does not automatically assure involvement in major planning. The nutritionist must be trained to function at the planning table. All too often the nutritionist has adequate technical ability but is not equipped to be effective as a planner. The health administrator of the legislative groups must be supplied with definitive descriptions of the problem, a clear cut plan of action including cost in time, personnel, and dollars, and a plan for evaluating the outcome as it relates to the total health system. Traditional plans that address only limited or specific age groups must be replaced by a comprehensive approach. Nutrition problems are not unique to any one group. Prenatal nutrition, growth and development, obesity, the hyperlipidemias, problems of the aging such as possible hypervitaminosis, and inborn errors of metabolism are all problems that deserve attention of State health nutritionists.

A certain type of framework is required for the above ideas to be realized. Optimum functioning will necessitate maximum flexibility. Funds whether Federal, State, or local must be allocated to nutrition—not to chronic disease nutritionists or institutional consultants or to maternal and child health nutritionists.

Four major areas of involvement appear to constitute a matrix within which optimum nutrition programs may evolve at the level of the State health agency.

Nutritional Surveillance

Despite the fact that this area appears basic to planning, implementing, and evaluating program activity, it has not been a major focus of public health nutrition programs to date. A surveillance program, specifically planned for the State involved is the only way to identify the nutritional needs unique to that geographic area. National surveys may suggest problem areas and high risk population groups, but only a continuing or planned periodic surveillance within the State can provide data basic to a well-founded program.

Frequently data are already being collected by other departments within the agency—e.g. epidemiology, vital statistics, and maternal and child health programs are routinely collecting information that can provide the nutrition section with important facts. Perhaps some reorganization or method of interpretation might be indicated if it is to be of greatest value to the nutritionists. Also, most health departments have such data as socioeconomic status, morbidity and mortality rates, and birth weight of infants. All of these have direct relation to nutrition planning.

Although it is difficult to understand this fact, there is also a wealth of basic information recorded and never used. To mention a few examples, heights, weights, and hemoglobin levels frequently are recorded but never reviewed or used in an epidemiologic framework. Not only is this an inexcusable waste of time, energy, and money, but it ignores basic information which might pinpoint groups needing intensive nutrition services.

In still other situations, the nutrition department may need to organize and conduct surveys that will provide information regarding the prevalence of specific nutrient deficiencies in identified population groups.

It is important to realize that surveillance is continuous while a survey per se is usually done at one point in time. Although a survey may highlight problems it should be followed for either continuous or preplanned periodic monitoring of those parameters selected as indices for measuring the nutritional problems and the effects of intervention programs on these problems. Such parameters may involve the nutritional status of selected population groups, dietary patterns, monitoring of the food supply, or availability of health and nutrition services, to cite a few.

Nutritional Standards

Second, the setting of Nutritional Standards should be a primary responsibility of the health agency. These would include standards for meal service for all group facilities; professional standards for personnel

involved in such facilities; guidelines for nutrition education programs; and standards for evaluating the nutritional status as determined by either surveys or a surveillance system. With the increasing emphasis on congregate feeding for the elderly, for the provision of nutritional services as a functional component of health maintenance organizations and with growing numbers of non-nutritionists being utilized to extend nutritional care, it is doubly important that standards be set and provisions made to assure their implementation.

Nutritional Consultation

Nutritional Consultation is a third area in which the State program should be actively engaged. Although in general we believe that direct patient counseling should be performed at the local level and in many instances the same is true for consultation to institutions, the nutritionist at the State level should provide assistance in the identification of problems, interpretation of these in terms of program needs, and assist in setting up operational programs at the local level.

The State nutrition unit should also provide consultation to appropriate State agencies and the State legislature with regard to long range and immediate nutrition needs and program plans for the population of the State.

Applied Nutrition Research

Finally, the State nutrition unit should have a program of Applied Nutrition Research that is directed toward designing, implementing, and evaluating model programs which, if successful, can be instituted at the local level.

For many, the above ideas will not be new. However, to use them as functional guidelines may require an in-depth review of existing programs and a realignment of manpower and objectives. Despite existing shortages of money and manpower, we believe that a new look at priorities and a willingness to abandon traditional approaches if they are no longer effective will move us much closer to optimum nutrition for our population.

APPENDIX K

PRELIMINARY PLANS FOR THE SECOND HEALTH AND NUTRITION EXAMINATION SURVEY

A. JUSTIFICATION

The National Center for Health Statistics (NCHS) has legislative authority under Public Law 93–353, Section 306, Paragraph (6), Item (1) to collect statistics on a number of health areas which include:

1. The extent and nature of illness and disability in the U.S. population.
2. Environmental, social, and other health hazards.
3. Determinants of health.
4. Health resources and utilization of these resources.

One of the continuing NCHS programs providing such information, the Health Examination Survey is completing its present field program (OMB No. 68–R1184) in October 1975. The Division of Health Examination Statistics requests *preliminary approval* for its next project outlined below which is designed to complement and supplement the data relating to the four areas stated above generated from other NCHS and external data collection mechanisms. The proposed program focuses primarily on assessing health variables that cannot be measured more efficiently through some other mechanism that can produce national data as described below. The topics for which clearance is being requested are expected to be an inclusive list of those that will be pilot studied and pretested by DHES staff for possible inclusion in the Second Health and Nutrition Examination Survey (HANES II) program.

The purpose of the HANES II program is to measure the prevalence of certain health and nutritional conditions and indicators, and to monitor change in them over time. Major conditions of interest are *anemias, diabetes, kidney disease, heart disease, liver disease, hypertension, speech defects and hearing problems, allergies, osteoarthrosis and disc degeneration in the cervical and lumbar spines, otitis media,* and *respiratory function.* Evaluation of nutritional status will include dietary intake and food frequency data inter-related with physical examination, medical history, and biochemical assessment data.

1. Target Population.—a. Nutritional assessment and general health: a national probability sample of civilian, noninstitutionalized individuals in such a manner that estimates of health and nutritional status can be made for persons 6 months to 74 years of age, and specifically for population groups at high risk of poor nutrition, e.g., preschool children, the aged, the poor, and women of child-bearing age. Some estimates will be possible for minority persons within these groups. Hawaii, Alaska, and American Indian Reservation lands are included in the target universe.

b. Heart disease, diabetes, arthritis of the back and spine, and liver disease would be assessed in a national probability sample of adults 18–74 years of age that would comprise a subset of a.

c. Kidney disease, hypertension, and allergies would be assessed on a national probability sample of the group 3–74 years of age that would comprise a subset of a.

d. Respiratory function and speech defects would be assessed on the 6–24 years of age group that comprises a subset of a.

2. The sample design being jointly developed by the Statistical Methods Staff (SMS), NCHS, and the Statistical Methods Division (SMD) Bureau of the Census, will build upon the 376 strata sample design of the Health Interview Survey to specifically define a representative national sample that will be capable of estimating the prevalence of target conditions by geographic region, urbanization, and some age, race, sex and income classifications. Not all of these classifications could be used simultaneously.

Although the details of the plan are not available at this time, it appears from past experience that 21,000 examined persons (EP's) distributed over the age range can produce satisfactory estimates for the target groups and conditions. Assuming a *modus operandi* similar to that of HANES I and a response rate of eighty percent (80%) or greater, the sample size required to obtain 21,000 EP's is about 27,000 sample persons (SP's). The SP's would be selected from a maximum of 64 locations called Primary Sampling Units (PSU's) between January 1976 and November 1978 (roughly a three year period). If the Fixed Site Project (OMB 68–S74022) is successful, a number of "locations" could be run concurrently and the time of the data collection could be reduced.

Within a PSU poverty segments will be emphasized. SMD has Census Tract and Enumeration District (ED) data that enables selection of segments in ED's where x% of segments fell below poverty levels (or some fraction of it) in 1970. The sampling of these segments to other segments would be at a radio between 2:1 and 4:1. The optimum level for the development of the estimates specified above, should be determined by SMD using a Poverty Index cutoff of less than 1.00. Segments would be clusters of eight (8) households.

SMS and SMD will recommend the sampling rate of persons within sample households to obtain the necessary number of SP's in each age class to produce the desired estimates. The within household sampling rate by age will be kept simple and will emphasize the pre-school children and the aged. In HANES I females of child-bearing age were also over-represented in the selection procedure. This was found unnecessary in a second program because adequate numbers could be examined without special emphasis. The number of SP's per PSU will be between 300–600 persons.

A detailed sample design and selection plan will be furnished in a final clearance request in the fall 1975. Mr. Earl Bryant is the Chief, SMS, NCHS, and is responsible for coordinating this aspect of the proposed plan.

3. The Household Interview will be conducted by the Bureau of the Census interviewers as in HANES I. The interviewers will obtain socio-economic and demographic information on each household, select the sample persons from a household roster, and obtain medical

history data on the sample persons (SP's). The Census interviewer will also attempt to arrange with the SP an appointment time for examination.

4. Examinations, as in previous Health Examination Surveys, will be given in two sets of mobile examination trailers that have a standardized environment and selected high quality equipment. The Division of Operations, NCHS, will specify the required equipment given the survey specifications, hire, train, and manage the field teams to administer and conduct the examination.

5. Sample persons will be provided with transportation to and from the examination site or paid a mileage rate if they choose to drive their own cars. The SP will be reimbursed for the costs of other transportation to the examination site and return home. In addition, the examined persons will be paid $10.00 for their participation in the survey and the inconvenience caused by such participation.

6. The results of the examination will be reported to an SP's usual source of medical care or to the individual if no release is obtained from the SP.

7. In accordance with Section 308(d) of the Public Health Service Act, NCHS assures each respondent that the confidentiality of their responses to this survey will be maintained and that any information from questionnaires or records identifying individuals will not be disclosed without securing prior written consent from the respondent.

B. EXAMINATION ASSESSMENTS AND JUSTIFICATION

1. *Anemias.*—the HANES I survey results indicate that anemia defined by low hematocrit and hemoglobin levels is an important health problem in the U.S. With public policy actions such as the recommendations by FDA that food products be enriched with iron and with some opposition to this action by members of the medical community, it is important to monitor the prevalence of anemias and also to attempt to characterize the type of anemia.

To characterize anemias, the following approach has been recommended by Dr. William Darby, President, Nutrition Foundation, Inc., CDC personnel and others.

a. Symptoms, signs, and causes of anemias are to be gathered in medical history questions and a physician's examination.

b. Biochemical indicators in blood would be assessed—hematocrit, hemoglobin, complete blood count, iron, iron binding capacity, folate, and protoporphyrin. On those in the normal range of hematocrit and hemoglobin a sample would receive the following battery of tests while all those with low values would receive the following tests: ferritin, Vitamins B_6, B_{12}, and Vitamin E, copper, zinc and lead.

c. Dietary data would be related to the above assessments to help explain some of the findings under a. and b.

To monitor anemia levels and change over time, many of the assessments are the same; the new tests are:

Protoporphyrin and ferritin (better measures of actual iron stores available at the cellular level),

Vitamins B_6, B_{12}, and Vitamin E (other than iron deficiency causes of anemia),

60-843—75——12

Copper and zinc (necessary trace metals related to anemia), and

Lead (lead burden can cause anemia).

The output of this set of assessments will be prevalence of anemias in the U.S. population by various characteristics described above; information on the interpretation and relationship of various indicators of anemia on a representative sample of the population; information on shifts in the prevalence of anemias prior to implementation of public policy decisions to enrich foods with iron and subsequent to that decision. Normative data will also be produced to assess the prevalence of deficiencies as well as toxic levels.

2. *Diabetes.*—Public Law 93–354 expanded the authority of the National Institutes of Health and the Center for Disease Control to advance the attack on diabetes mellitus providing millions of dollars for increased activity in diabetes prevention and control programs as well as for funding research and training centers. Accurate prevalence estimates are not available for the U.S. population; about two percent of the population is being treated for diabetes. The hypothesis of the American Diabetes Association and other experts in the medical field is that undiagnosed cases number two to three times the diagnosed cases.

DHES proposes to give a national probability sample of persons 18–74 years of age a diagnostic glucose tolerance test to estimate the total prevalence of diabetes in the U.S. Questionnaire data will include the proposed HIS battery of questions (OMB No. 68–1600) to correlate with the findings of the examination component of the proposed HANES II survey.

The procedure for having the standard glucose tolerance test performed is being explored to minimize the burden on the respondent. A pilot study will be designed to determine the most acceptable method logistically for conducting this assessment.

The assessment procedures are being developed with representatives of the American Diabetes Association, the National Institute of Arthritis, Metabolism, and Digestive Diseases (NIAMDD), HIS, and individual consultants. A pretest clearance request for a pilot study of respondent acceptance of the test procedure will be sent forward in the near future.

Diabetes is related to kidney, cardiovascular, and hypertensive diseases which are also proposed target conditions for this survey.

3. *Kidney Disease.*—Kidney disease and its treatment have major implications for such federal programs as HMO's, National Health Insurance, Medicaid, Medicare, and Comprehensive Health Planning Agencies. Federal programs authorized by the Social Security Amendments of 1972 have a variety of responsibilities that have enormous potential program costs involving the End-Stage Renal Disease Program under Medicare and other DHEW objectives to develop policies to carry out the legislative intent, to accommodate patterns of medical practice and care in treatment of renal disease, and to relate these activities to PSRO and other quality assurance programs.

Discussions with Dr. Nancy Cummings, NIH; Dr. Cutler, University of Washington; Dr. Schreiner, George Washington University, and the Subcommittee of the Special Committee on Statistical Needs of the National Kidney Foundation, indicated that estimates of the

prevalence of kidney disease and normative data relative to kidney disease do not exist for the U.S. population. The impact of serious renal disease on the individual and the medical care system suggest a need for data that is not available from any other source. Assessment of kidney disease is particularly suitable for the HES mechanism because many cases of mild or early disease states are hypothesized to be undiagnosed leading to more severe than necessary kidney damage later in life.

The examination phase of the kidney assessment will consist of a number of urine assessments to determine urine protein, specific gravity, glucose and ketone bodies, and inspection of the urine sediment for red cells, white cells, epithelial cells, casts, and crystals. The urine would also be analyzed for bacteriuria. A kidney function test involving a creatinine clearance would also be administered. Serum albumin is also an important assessment. The consultants felt an adequate family history of hypertension, polycystic disease, kidney disease, deafness, and kidney stones was essential for data interpretation. The relationship of kidney disease to diabetes, hypertension, and cardiovascular disease is also important.

4. *Cardiovascular Disease* (*heart disease*).—The contribution of cardiovascular disease to morbidity and mortality in the U.S. population is well known. Federal programs have supported emergency medical services, preventive medical check-ups, careful diet, exercise, etc. Yet, sudden death outside of the hospital accounts for approximately 30 percent of the 600,000 annual deaths due to ischemic heart disease. A common opinion is that many sudden cardiac deaths are due to arrhythmias (deviation from the normal rhythm). With the support of the National Heart and Lung Institute, the proposed heart package below is designed to measure the number and duration of arrhythmias in persons 25–74 years of age in the U.S. population with a standardized two-hour electrocardiogram assessment. Other electrocardiograph abnormalities will also be noted and analyzed for prevalence data. A clearace request for pilot studying the procedure will be prepared in April 1975.

The plans for collection and analysis of data are being based on extensive consultation with the staff of the National Heart and Lung Institute; Dr. Hinkle, Cornell Medical Center; Dr. Schroeder, Stanford University Medical Center; Dr. Lown, Harvard University; and Dr. Cox, Washington University.

The ECG measurement would begin early in the examination with a light exercise challenge sometime during the course of the examination. The exercise mechanism and related safety precautions are being investigated.

Other assessments related to the estimation of heart disease include: (1) blood pressure measurements; (2) medical history of heart disease and symptoms; (3) biochemical assessment of cholesterol, copper, zinc, uric acid and possibly magnesium; (4) a physician's examination for symptoms and signs; and (5) dietary intake data and medicines being taken for heart disease.

The data will be presented cross-classifying the cardiovascular symptoms, history, and other items by the number and duration of arrhythmias. Specific tables planned will be presented in the final clearance request.

5. *Liver Disease.*—A new method for detecting liver disease (nonspecific) is proposed to provide prevalence data on a national basis. Considerable evidence suggests that there is a large amount of undetected anicteric liver disease that only becomes clinically apparent at advanced stages of cirrhosis. The prevalence data has important implications on the interpretation of data on nutritional status, alcohol consumption, and hepatitis virus. If resources can be identified, a test for hepatitis will also be included in the liver assessment.

Consultations on the development and interpretation of data sets have included Dr. Javitt, Cornell Medical Center, and Dr. Berg, NIAMDD. The test consists of a serum or urine test for bile salts after ingestion of food capable of causing contraction of the gall bladder (egg nog, peanut butter, etc.). Included in the test package would be:

1. Medical history data of liver disease.
2. Biochemical workup on serum of alkaline phosphatase, SGOT and bilirubin.
3. Alcohol consumption questions on the 24-hour recall and dietary frequency questionnaires.
4. Physician's examination for symptoms and signs.

No other source for this data exists. Detailed output tables will be submitted with a final clearance request, should the tests prove feasible in pilot studies.

6. *Hypertension.*—The National Heart and Lung Institute, state and local governments, and private concerns are investing millions of dollars in hypertension programs, drugs, etc. Prevalence data will exist upon completion of the HANES Detailed Examination, but the resources being devoted to active programs to reduce or treat hypertension indicate a need for monitoring the prevalence of the condition and the awareness of the condition. In addition, the target conditions proposed for HANES II require that hypertension be assessed concurrently with diabetes, kidney disease, heart disease, and obesity. The assessment will include:

1. Medical history data.
2. Blood pressure (two measurements).
3. Biochemical assessments of BUN, and creatinine.
4. Physician's examination for symptoms and signs.
5. Body measures—height, weight, and skinfolds.
6. Urine assessment.

The output tables from this assessment will be described in detail with the final clearance request. All examinees will receive this evaluation.

7. *Speech and Hearing Defects.*—The speech and hearing segment of the proposed examination would be given to all examinees 6–24 years of age. The only previous prevalence data for speech defects for the U.S. was developed from the Health Interview Survey. The magnitude of resources being devoted to speech problems is indicated by the 90,000 speech teachers working in public schools alone. The speech assessment will consist of evaluation of recordings of sentences repeated by the examinee in addition to a recorded description of a picture. The parameters to be assessed are articulation, fluency, voice, and language. The test procedure is being developed in consultation with Dr. Irene Stephens, Purdue University and Dr. Ludlow, NINDS.

Hearing levels will be assessed by means of puretone audiometry. Prevalence data for hearing levels are available from previous HES efforts, but the interrelationship between speech and hearing indicates at least a minimal set of frequencies should be evaluated to properly interpret the speech recordings. Middle ear pathology and, in particular, the prevalence of serious otitis media will be assessed by means of impedance measurements and physician's examination of the eardrum. These assessments are being developed in consultation with Dr. LaBenz, NINDS, and Dr. Northern, University of Colorado Medical School.

In addition, medical history and related questionnaire data will be developed. The output of the segment will be prevalence of speech defects and serious otitis media. Serious otitis media prevalence is of direct programmatic interest to a number of organizations in the Health Services Administration who specifically requested this be considered as a target condition.

8. *Osteoarthrosis and Disc Degeneration in the Cervical and Lumbar Spines.*—Osteoarthrosis is one of the most common diseases seen in older Americans. In many Americans, the disease is a major cause of disability in terms of limitation of activity and mobility. This is documented from HES Cycle I and HIS publications. No prevalence data are available on osteoarthrosis and disc degeneration in the cervical and lumbar spines. Although the physical examination in assessment of osteoarthritis is difficult and rather inaccurate, radiologic methods are available for assessing the severity of the lesions. Male examinees 25–74 years of age will be given x-rays of the cervical and lumbar spines; females over 45 years of age will receive these x-rays. Medical history of osteoarthritis and sympton data will also be collected.

The output of the assessment will be prevalence of osteoarthritis of the cervical and lumbar spines by severity. Detailed tables will be presented in the final clearance request. Consultations have been with Drs. Decker and Bennett, NIAMDD, and Dr. O'Brien, Department of Medicine, University of Virginia.

9. *Allergies.*—Allergies occur in a considerable proportion of the population and are responsible for a large number of ambulatory medical care visits, utilization of many drugs, and cause a small number of deaths. In consultation with staff of the American Academy of Allergy (AAA) and the National Institute of Allergies and Infectious Diseases, DHES proposes to do a prick skin test for five or six common allergies in the mold, grass, tree, and ragweed groups. An official AAA Committee is considering exactly which allergens with these groups should be administered. The results will provide prevalence estimates on the number of persons and their degree of sensitivity to specific allergens. Medical history of allergies and symptoms will also be included. This information is not available from other sources. Typical output tables will be presented in the final clearance request.

10. *Nutritional Status.*—The results of HANES I indicate that a substantial number of nutritional problems exist in the U.S. Anemias were discussed earlier as a primary health condition of interest in HANES II. The *Preliminary Findings of the First Health and Nutrition Examination Survey, U.S. 1971–1972*, indicated specific biochemical and dietary intake problems for broad population groups. Federal,

state and local efforts in providing food stamps and food delivery programs, cost billions of dollars annually and affect millions of persons directly and indirectly. Many millions of dollars and other scarce resources are expended annually by the public and private sectors on nutrition education programs; research on the need for and effect of food enrichment programs; research on the complex relationship of health and nutrition variables; and the delivery of health services to under- and over-nourished persons. Food producers are, or will be, required to label the nutritional contents of their products so that an "informed" public can make more rational selection of foods consumed. Providing concrete indicators of nutritional status to such programs and monitoring changes in these indicators over time fulfills a data need provided by no other source on a national basis and at a relatively low incremental cost when combined with other target assessments proposed.

Evaluation of nutritional status will include:

a. The physician's examination will be comparable to that of HANES I. It is a brief examination with regards to clinical signs of malnutrition.

b. Body measures comparable to those of HANES I are proposed to assess growth, development, and obesity in all population groups.

c. Biochemical and other laboratory assessments to assess the prevalence of nutrient deficiency or toxic levels of nutrients (anemia assessments mentioned previously:

1. Vitamin A deficiency in children and older Americans will be monitored.
2. Vitamin C deficiency and normative data will be measured.
3. Riboflavin deficiency and normative data will be measured by a red cell enzyme test.
4. Thiamine deficiency and normative data will be measured by a red cell enzyme test.

d. Food frequency and 24-hour recall data will be collected to estimate for population groups the nutritional value of reported food intakes, how often certain foods and food groups were eaten, and other factors related to dietary practices, such as numbers of meals or snacks consumed, and use of vitamin and mineral supplements. The objective is to relate these items to the other assessments of nutrition and health.

e. Questionnaire data applicable to nutritional assessment include menstrual period information, medical conditions currently and recently, operations recently, special diets, use of medications including birth control pills, vitamins, pregnancy status, and special eating problems.

The assessment of nutritional status has been developed on the basis of the results of HANES I, recommendations of the American Public Health Association's Conference on Nutritional Assessment, recommendations of numerous individuals with regards to the continuing need for information on obesity, trace elements, diet supplementation and its effects, etc. Of special note is the exchange of information with staff of the U.S. Department of Agriculture to ensure that the data collected on dietary intake is comparable to their proposed Food Consumption Survey. Having comparable data with DHES relating this data to specific health status measures,

national food and health analysts are provided with important correlative data that neither the HANES mechanism nor the USDA survey could individually provide. Discussions have been with Dr. Rizek and a number of other staff members.

Where possible, the HANES I procedures will be employed in HANES II to provide comparable data from one survey to the next. Specific tabular output from the assessment will be submitted with the final clearance request.

11. *Miscellaneous Assessments.*—a. Miscellaneous medical history and questionnaire data to be collected:

1. Medical care sought with respect to specific target conditions.
2. Impact on the individual of specific target conditions with respect to limitation of activity and bed days.
3. Smoking questions to relate to target conditions and a measure of carboxyhemoglobin discussed below.
4. Participation in major federal programs related to health and nutrition.
5. Socio-economic demographic data about the household and individual.
6. A brief measure of psychological well-being similar to that employed in HANES I.

b. The Federal Energy Administration (FEA) has indicated a strong interest in having a carboxyhemoglobin assessment done on a national probability sample of persons as an indicator of carbon monoxide body burden. EPA has some data on special population groups, but national data are not known from any source. Important health effects occur when carboxyhemoglobin reaches 3 percent and continue to get more serious as the level increases Dr. Blair and Mr. Viren of FEA have consulted with DHES staff on this project.

FEA, FDA, and EPA have indicated an interest in having lead assessments extended to all examinees and not limited to a subsample as proposed. Doing both assessments would involve support from the agencies involved to fund the laboratory assessments on blood.

c. Assessment of pulmonary function is proposed for a sample of persons 6–24 years of age. Spirometry methods developed in the HANES-I Detailed Examination on persons 25–74 years of age would be repeated to obtain normative data for pulmonary function for the young age group 6–24 years of age.

d. Syphilis and gonorrhea assessment. Dr. Sencer, CDC, has specifically requested HANES II to include assessments which could lead to the estimation of the percentage of persons with a reactive blood test for syphilis and the percentage of women who are culture positive for gonorrhea.

The objective of obtaining the information would be of great value in measuring the extent and distribution of gonorrhea and syphilis and evaluating the impact of present and past control efforts.

A number of technological and acceptance problems concerning these assessments require further discussion between DHES and CDC staff. A feasibility study will be conducted prior to studying the problem of acceptance of the gonorrhea culture. A clearance request will be submitted shortly.

Specifics for all examination components and questionnaires will be submitted in pilot study clearance requests. The overall examination time and burden on the respondent will be less than in the HANES I survey.

C. TABULATION AND PUBLICATION PLANS

This item will be completed in detail when a final clearance is requested.

D. TIME SCHEDULE FOR DATA COLLECTION AND PUBLICATION

1. Various pilot studies—June 1975–October 1975.
2. Data Collection—January 1976–November 1978.
3. Data preparation and editing—December 1978–April 1979 (plus concurrently with 2.).
4. Data analysis and manuscript preparation—May 1979–October 1981.
5. Reports to Publications—November 1979–November 1981.

E. CONSULTATIONS OUTSIDE NCHS

Approximately eight hundred medical providers, planners, researchers, and educators were asked to recommend to DHES staff major health problems for which there was a need for national data to assess the nature and extent of the problem(s). Approximately two hundred replies were received and reviewed. For those suggestions that were deemed feasible, the specific suggestions and follow-up consultations are stated in the discussion of the survey content. The Five Year Forward Plans for all health agencies were reviewed for national priorities; current and proposed legislation were considered important criteria for inclusion if data sets were not available from other sources. Input of general program scope and broad content recommendations were developed from meetings and memoranda between DHES staff and the program representatives listed in Attachment 1. Input was also requested from the NCHS Panel of Advisors. Copies of the letters sent to the medical community and the Panel of Advisors are also in Attachment 1.

The list in Attachment 1 is not exhaustive of sources who have contributed to the present stage of the survey plan. Many individuals are mentioned in the discussion of the specific topics presently included as potential items for the HANES II program.

The plan proposed in this document will continue to be evaluated and many others will contribute input to the final plan submitted in the fall 1975.

F. RESPONDENT BURDEN WILL BE CALCULATED IN DETAIL IN THE FINAL CLEARANCE SUBMISSION FOR THE PROJECT

G. SENSITIVE QUESTIONS IN THE USUAL SENSE ARE NOT ANTICIPATED

There will be questions concerning the use of birth control pills, menstrual period, blood in the urine, and the like, but in a medical setting these are common questions and necessary. Birth control pills affect the level of biochemical values observed in a number of vitamins.

It is important in analysis to be able to control pill usage. Anemia in women cannot be analyzed without knowing if the woman was having her period at the time of examination. Blood in the urine is an important symptom related to a number of health conditions and specifically to anemia and kidney disease.

The treatment above is brief, but each "sensitive" question proposed for inclusion in pilot studies or in the final clearance will have a justification of a similar nature. Confidentiality is covered in Section A., Item 7.

H. ESTIMATE OF COST TO THE FEDERAL GOVERNMENT

The annual cost of the proposed project, including overhead is approximately four million dollars. Support from other government agencies has not been finalized, but NIAMDD has indicated that $40,000–60,000 would be available to support the assessment of diabetes. The National Heart and Lung Institute has indicated some support would be available for equipment and analysis of the heart disease component, but level has not been established. The Bureau of Laboratories, CDC, has some objectives that enable that organization to bear some of the true costs of supporting a large scale national effort to develop biochemical norms and prevalence of specific deficiencies or toxic levels of vitamins or substances; the level of the contribution is unknown, but should be recognized.

LETTER SENT TO NCHS PANEL OF ADVISORS

In planning previous Health Examination Surveys, the advice of the NCHS Panel of Advisors has been of great value, especially in identifying current needs for health information. The Division of Health Examination Statistics (DHES) is now planning another Health Examination Survey which will begin early in 1976. We would again appreciate your assistance.

As you are aware, the purpose of the health examination mechanism is to provide those national health statistics which can be best, or exclusively, obtained by direct examinations, tests, and measurements conducted on probability samples of the noninstitutionalized U.S. population. Results are published as prevalence estimates of medically defined conditions, as indicators of nutritional status, and as distributions of the population with respect to selected physical, physiological, nutritional, and psychological characteristics. By interrelating medical history forms, questionnaire items, and examination findings, it is possible to estimate the number of people who have a specific condition, such as hypertension or diabetes, but would not report it on an interview survey because they do not know they have it. In addition, met and unmet medical care needs can be identified, and the utilization of services and the source of payment for services can be related to specific conditions.

In the 1976 examination survey the nutritional status of the U.S. population, 1–74 years of age, will again be assessed. In addition, major components included in the first Health and Nutrition Examination Survey (HANES I) program will remain unchanged in the new survey so that changes over time can be monitored. Some nutritional assessments included in the HANES I program will be deleted, while others will be added. Your recommendations concerning modifications to the nutritional component are requested.

A single visit, two-hour examination cannot thoroughly assess all aspects of health. Hence, in planning the new survey, the survey staff must:

1. identify selected health conditions that can be measured within the allotted time period with a minimum of discomfort or embarrassment to the examinee, and
2. determine whether the proposed health conditions can be reliably measured considering the logistic, staffing, and equipment requirements involved and the resources available to the survey.

In HANES II, a subset of the adult group 18–74 years of age will receive a more detailed health examination focusing on selected target conditions and certain normative health data. Suggested target conditions will be evaluated for inclusion in the light of both the above criteria and the following ones:

1. the prevalence of the health condition,
2. the relevance of the condition to proposed or implemented national legislation and DHEW priority programs,

3. the impact of the condition on utilization or need for medical care services,

4. the effect of the condition on the person in regard to discomfort or disability, and

5. the need for data that cannot be met or provided by other sources or by data collected during previous national Health Examination Surveys.

The Health Examination Survey staff would appreciate your recommendations on health conditions that satisfy these criteria. Any suggestions or comments you make will be reviewed immediately. Please do not confine your recommendations to the adult age group, because brief physical and biochemical assessments, as well as a nutritional assessment, may be performed on children. Please direct the recommendations to:

Mr. Robert S. Murphy
Chief, Survey Planning and Development Branch
Division of Health Examination Statistics
National Center for Health Statistics
5600 Fishers Lane
Rockville, Maryland 20852

If you are aware of persons with special expertise relating to the recommendations you have, please include their names and state their possible contribution toward developing a component in the next survey.

Because of the lengthy period required to formulate the various aspects of the examination, pretest them and to field the survey, I would appreciate your recommendations at your earliest convenience.

Sincerely yours,

EDWARD B. PERRIN, Ph. D., *Director.*

LETTER TO DIRECTORS, MEDICAL RESEARCH INSTITUTES; CHAIRMEN, DEPARTMENTS OF PEDIATRICS AND MEDICINE

On behalf of the Health Examination Survey, I am seeking your aid in planning our next program. The Health Examination Survey, a part of the National Center for Health Statistics, was established by Congress in 1956 to obtain information about the health status of the U.S. population.

Since 1960, the Survey has conducted health and nutrition examinations on probability samples of the civilian noninstitutionalized population of the U.S. Successive surveys have focused on adults 18–79, children 6–11, and youth 12–17 years. The examinations are conducted in specially designed mobile examination centers. Among the examination procedures that have been employed are:

chest X-rays for pulmonary and cardiac pathology,

hand, foot, hip and knee X-rays for arthritis,

hand-wrist X-rays for skeletal age assessment and bone densitometry,

electrocardiograms, spirometry, and single breath carbon monoxide tests,

an exercise tolerance test using a treadmill, grip strength, and blood pressure,

audiometric pure tone and bone conduction tests,

a clinical ophthalmology examination by an ophthalmologist,

a dermatology examination by a dermatologist, including a skin biopsy when indicated and fungus cultures,

a battery of intellectual development, school achievement, and literacy tests,

a psychological evaluation schedule,

anthropometric measurements,

a variety of specially structured examination items by a physician,

a dental examination by a dentist and an enamel biopsy for fluoride content,

hematocrit, hemoglobin, RBC, WBC and differential counts, blood groups and urine cultures,

laboratory determinations on blood for glucose, cholesterol, uric acid, PBI, T_3, T_4, iron, iron binding capacity, folates, albumin, total protein, calcium, phosphorus, magnesium, alkaline phosphatase, SGOT, Vitamins A and C and bilirubin,

urinary thiamine, iodine, riboflavin and creatinine,

serological determinations for antibodies against amebiasis, polio, rubella, measles, syphilis, tetanus, and diphtheria and a tuberculin skin test, and a large variety of medical histories and records including birth certificates of examinees.

The findings provide information about the following:

the prevalence and distribution of selected health conditions present in the general population—diagnosed and previously undiagnosed conditions,

growth and development patterns of children and youth—physical, physiologic, and behavioral,

indicators of nutritional status for the U.S. population aged 1–74 years,

met and unmet medical care needs related to specific target conditions for adults, and

normative data for the U.S. population aged 1–74 years.

We are planning to conduct, in early 1976, a new survey of the U.S. population aged 1–74. The sample will consist of approximately 25,000 individuals. In the past, we have relied on the advice of a large number of experts in different fields in planning the content of our programs.

The conduct and operation of the new program will be similar to that of the current Health and Nutrition Examination Survey (HANES). (See enclosed publications for a description of HANES I). Appropriate examination components will be provided for both pediatric and adult age groups. To identify important items of interest to the medical community, which are suitable for our survey operation, various experts including the directors of medical research institutes throughout the U.S. are being asked to submit suggestions that will help decide what the content of the next survey will be.

I would appreciate your passing this letter along to appropriate faculty members in your department so that they, too, might submit suggestions. Further involvement by interested consultants has included participation in the planning and conduct of the survey, and, in the past, in the analysis and publication of the data.

If you have any questions, please contact me at your convenience.

Sincerely yours,

ARNOLD ENGEL, M.D.,
Medical Director,
Division of Health Examination Statistics.

OUTSIDE CONSULTATION IN HANES II

PARTIAL LIST

Administration on Aging

Dr. Donald M. Watkin, Chief, Nutrition on Aging.

Center for Disease Control

Dr. David Sencer, Director.
Mr. Norman W. Axnick and Staff Office of Program Planning and Evaluation.
Dr. David Bayse and Staff Chief, Analytical Biochemistry Branch.

National Institutes of Health

Dr. Robert L. Ringler, Deputy Director, National Heart & Lung Institute.
Dr. Manning Feinleib, Chief, Epidemiology Branch, Division of Heart & Vascular Diseases, National Heart & Lung Institute.
Dr. William L. Zukel, Associate Director for Clinical Applications and Prevention, Division of Heart & Vascular Diseases, National Heart & Lung Institute.
Dr. G. Donald Whedon, Director, National Institute of Arthritis, Metabolism & Digestive Diseases.
Dr. Eldon Eagles, Deputy Director, National Institute of Neurological Diseases & Stroke.
Dr. Merrill Read, Associate Director for Extramural Programs, National Institute for Child Health and Development.

Health Services Administration

Dr. Robert Van Hoek, Acting Deputy Administrator.
Dr. Emery Johnson, Director, Indian Health Service.
Mr. Royal Crystal, Assistant to the Director, Bureau of Quality Assurance.

National Institute of Occupational Safety and Health

Mr. Ronald F. Coene and Staff, Office of Program Planning & Evaluation.

Special Committee on Statistical Needs, National Kidney Foundation

Dr. Darrell Farnestil, Chairman, Department of Nephrology, University of California.

American Diabetes Association

Joyce Kortman, Advisory Committee, NIAMDD.
Dr. Harvey Knowles, Chairman of the Statistical Committee.
Dr. Kelly West, Department of Medicine, University of Oklahoma.

Nutrition Foundation, Inc.

Dr. William Darby, President.

Food and Nutrition Board—Committee on Nutrition of the Mother and Preschool Children

Roy M. Pitkin, M.D., Chairman.

Food and Drug Administration

Dr. Charles Anello, Director, Division of Statistics, Bureau of Drugs.
Dr. Martha Fox, Division of Nutrition, Bureau of Foods.
Dr. Catherine Mahaffey, Project Manager, Lead Contamination of Food, Bureau of Foods

U.S. Department of Agriculture

Dr. Walter Mertz, Chief, Nutrition Institute
Dr. Robert Rizek, Director, Consumer & Foods Economics, Research Division, Agriculture Research Service.
Mr. Stephen J. Hiemstra, Assistant to the Administrator, Food and Nutrition Service.

Early and Periodic Screening, Diagnosis, and Treatment Program (EPSDT)

James Kolb, Program Analyst.

National Institutes of Mental Health
Dr. Earl Pollack, Deputy Director, Biometry Branch.

Federal Energy Administration
Dr. Joseph Blair, Medical Consultant, Office of Research and Development.
Mr. John Viren, Office of Environmental Programs.

Environmental Protection Agency
Dr. George Simon, Health Effects Division.
Mr. Leland McCabe, Water Resources Laboratory.

APPENDIX L

CENTER FOR DISEASE CONTROL, NUTRITION PROGRAM

A. The mission of the Nutrition Program is (1) to identify specific high-risk population groups and to further define the existence, character, and extent of the nutritional problems and (2) to develop and evaluate intervention programs aimed at the problems.

B. The principal mechanisms by which the above are achieved are through technical and financial support of projects conducted by health agencies, colleges and universities, and related groups. Both grants and contracts are utilized to provide financial support.

C. Specific examples of program activity to meet the objectives follow:

1. Nutritional status studies have been conducted in a variety of high-risk groups as a means of identifying the location of nutrition problems. Examples are:
   a. Ten-State Nutrition Survey with emphasis on low income families
   b. Studies of migrant populations
   c. Studies of American Indians
2. Various intervention techniques have been field tested to observe their impact on nutritional status. Two examples are:
   a. The use of highly fortified foods have been studied as a means of preventing iron deficiency anemia.
   b. Nutrition education has been studied as one method of reducing maternal and infant morbidity and mortality.
3. Technical assistance has been provided by the assignment of public health advisors to projects and health agencies.
4. Consultation is provided to various agencies on such topics as program planning and evaluation.
5. The program works closely with national professional groups in promoting and sponsoring workshops to deal with topics such as:
   a. Nutrition education in medical schools
   b. Reviewing and developing standards for interpreting iron nutriture
   c. Setting guidelines for interpreting anthropometric data

International activity has essentially the same focus. The programs are implemented by cooperative arrangements with US/AID, Public Law 480, and intramural arrangements.

Some examples of projects are:

1. A tri-partite study of malabsorption has been supported.
2. Staff has participated in the development and conduct of an assessment of nutritional status in Bangladesh.
3. Guidelines were developed for a simplified assessment of nutritional status in developing countries.

60-843—75——13

4. A study of the effects of nutrition education is being conducted under a Public Law 480 contract.

In addition to the foregoing types of program activity, the Program has served as the coordinating agency for a variety of HSMHA and DHEW projects including the provision of staff services for the Nutrition Coordinating Committee of DHEW.

D. Since the Nutrition Program is not oriented toward any specific age or ethnic group nor toward any specific disease category as such, the total population at high nutritional risk constitutes the ultimate consumer of its services.

E. Mutual interests with other HSMHA groups as well as other federal agencies result in some similarity of program plans and implementation. Both formal and informal efforts are exerted to prevent any duplication of services. Staff participation in such groups as the Interagency Committee on Nutrition Education, close liaison with such groups as MCHS, IHS, Regional Officer, USDA, and joint planning on project development help prevent an overlap of services.

F. Staff has included:

4 physicians	1 health educator
3 public health nutritionists	1 editor-writer
8 public health advisors	1 plant physiologist
2 statisticians	19 administrative and supportive personnel
1 public health analyst	

Total budget for fiscal year 1973 is $2,366,000.

G. There are no written guidelines for the Nutrition Program. Currently in preparation are:

1. "Guidelines for the Assessment of Nutritional Status as a Component of Public Health Programming"
2. A procedure manual for response to disaster
3. "Methodology for Simplified Assessment of Nutritional Status in Developing Countries"

H. No licensure is connected with program activities.

I. The Nutrition Program will be terminated June 30, 1973.

APPENDIX M

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE,
CENTER FOR DISEASE CONTROL,
Washington, D.C., July 31, 1974.

To: Acting Director, Office of Special Health Projects.
From: CDC Representative, Nutrition Coordinating Committee.
Subject: CDC Nutrition Activities fiscal year 1974.

Under the general authorities of Sections 301, 308 and 315 of the Public Health Service Act, the Center for Disease Control is cooperating with several States in developing a program of nutrition surveillance. The methodology was developed at CDC, utilizing growth and hematology data collected by the States. These data are submitted to CDC for analysis. The results are provided to the States for their use in targeting available resources to areas where nutritional deficiencies are most acute. It is expected that this will result in decreasing nutritional problems in the States. The information collected will also be utilized for investigations of the relationship between these nutritionally-related parameters and a variety of preventable diseases. Periodically published information on findings and related information is being provided to the States and other appropriate agencies. Through various bilateral programs, the CDC provides assistance and consultation in relation to nutrition survey and surveillance methodology to developing countries. The expenditure for this activity during fiscal year 1974 was approximately $184,000.

In addition, the CDC, under contract to the National Center for Health Statistics, Health and Nutrition Examination Survey, is performing all laboratory tests for this assessment program, including biochemical assessment of nutrients, hematological data, and quality control of specimen collection and handling. Furthermore, investigations regarding standardization, reference methods, and better assays for biochemical nutritional assessment are being conducted under the authority of Section 351 of the Public Health Service Act. The expenditure for this activity during fiscal year 1974, including reimbursable agreements, was $300,000.

GORDON E. ROBBINS,
(For Milton Z. Nichaman, M.D.).

(185)

APPENDIX N

REQUIREMENTS FOR DATA FROM THE 1977 NATIONWIDE FOOD CONSUMPTION SURVEYS FOR SPECIFIED PROBLEM AREAS AND USERS

Introduction

This paper identifies the types of data from the proposed 1977 surveys of household and individual food consumption needed or major categories of problems for which specified Federal agencies have authorized responsibility. For each problem-area, topics for reports, articles, bulletins, and administrative studies are suggested, along with their possible objectives and users. The topics and objectives provide the basis for specification of data needs especially for changes from the types of data available from the 1965–66 surveys. Finally, the paper provides indications of forms for making data and analytical findings available to user groups.

The problem-areas are outlined below:

I. Public information (U.S. Department of Agriculture-USDA):
   - A. Variations and changes in food consumption, diets, and dietary adequacy.
   - B. U.S. food market in 1977 and changes since 1965–66.

II. Food market research and demand analysis (USDA):
   - A. Agricultural policy and programs.
   - B. Agribusiness problems.

III. Formulation of food plans at alternative cost levels (USDA).

IV. USDA food policies and programs:
   - A. Relevant to general public.
   - B. Dealing with low income families.
   - C. Problems of specified population groups.
   - D. Food and Nutrition Service's administrative studies.

V. Fishery and game problems (National Marine Fisheries Administration-NMFA):
   - A. Health related.
   - B. Market research.

VI. Health related problems:
   - A. Responsibilities of Food and Drug Administration (FDA).
   - B. Responsibilities of other agencies in the Department of Health Education, and Welfare (HEW) such as Public Health Service and Center for Health Statistics.

VII. Scientific problems relevant to (USDA):
   - A. Sciences of food and nutrition.
   - B. Food technology.
   - C. Consumer education.
   - D. Survey methodology.

VIII. Income-related problems—HEW, USDA:

A. Measurement of poverty.

B. Evaluation of impact of current income-maintenance programs on subsistence levels of specified population groups.

C. Appraisal of needs for changes in Federal income-maintenance program.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
I. Public information re:	
A. Variations and changes in food consumption, diets, and dietary adequacy:	
1. Food consumption of households in U.S., 4 regions—spring 1977 other seasons and year 1977.	Provide data and brief descriptions of current consumption of major foods by households grouped by urbanization and income to enhance public understanding of current food situation and changes since 1965–66.
2. Changes in consumption of selected foods between 1965–66 to 1977.	
3. Seasonality of consumption and price for selected foods.	
4. Dietary levels of households in U.S., 4 regions—spring 1977 other seasons and year 1977.	Provide data and brief descriptions of nutrient supplies and adequacy of household diets in 1977 and comparisons with 1965–66 to inform public.
5. Changes in household diets between 1965–66 and 1977.	
6. Impact of changes in home food production on household diets.	
7. Food patterns of households with good and poor diets.	
8. Food and nutrient intakes of individuals in sex-age groups, spring 1977—U.S., by region, urbanization, and income.	Supply data on diets of individuals during several days (week?), in order to inform public about variations in diets and problems of particular population groups.
9. Food patterns of individuals with good and poor diets.	
10. Patterns of food intake at home and away from home of individuals in selected sex-age groups.	
11. Variations in individual diets among households with homemakers having specified characteristics.	
12. Portion sizes and frequency of use for selected foods—by sex-age group and area.	Provide data on variations in intakes of individual foods.

User groups

News media, general public, government agencies, the Congress, food industries, dietitians and other health specialists, producer groups.

Data needs

Food in categories matching 1965–66 data and for matching population groups. Family and individual characteristics to expedite specification of particular consumer groups—e.g., ethnic, income.

Because of inflation, selected sets of 1965–66 data should be given for households grouped by income in 1977 dollars to expedite comparisons of the two sets of survey data.

Forms for output

Survey reports with tables comparable to those in 1965–66 survey reports 1–17, but brief narratives of press-release type. Brief articles and short bulletins focused on particular population groups and particular commodities. Data tapes without sampling unit identification.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
B. U.S. food market description: 1. Structure of food market in 1977 compared with 1965–66. 2. Cross section indexes of food consumption in spring 1977 and changes since 1955 and 1965. 3. Changes in use of processed foods and other categories of marketing. 4. Seasonality of food consumption in 1977 with comparisons.	Provide basic information on market structure and segments for all foods and major foods in 1977 and historical comparisons for use in market research and appraisal of country's food situation.

User groups

Food firms and industry groups, agricultural organizations; agricultural economic researchers in government agencies, universities, and business; market researchers, mass media.

Data needs

Maintain comparability with 1965–66 survey data.

Forms for output

Articles in USDA periodicals, short bulletins, press releases for food industry and agricultural publications.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
II. Food market research and demand analyses for: A. Agricultural policy and programs: 1. Key factors in changes in food consumption and food marketing 1955 to 1977—all foods, major food groups. 2. Alternative estimates of potential domestic consumer demand for major categories of agricultural commodities.	To provide economic analyses of historical changes in U.S. consumer demand for agricultural commodities and projections of future changes under alternative assumptions for use in public and private decision making regarding resource development, public subsidies, production adjustments, etc.

User groups

U.S. government administrators, farm organizations, Congressional committees, land-grant college researchers, resource planners.

Data needs

Maintain comparability with 1965–66 survey data for food in marketing groups and individual major items.

Family characteristics, food program participation.

Forms for output

USDA bulletins, articles in USDA periodicals and professional journals. Detailed data tapes for both 1965–66 and 1977 and seasons.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
B. Agribusiness: 1. Factors related to changes in U.S. market for specific foods and in specified forms. 2. Marketing implications of changes in amounts, place, and form of food consumed by major population groups.	Provide analytical basis for decision making in agribusiness firms and guidance for food market research.

User groups

USDA administrators, farm organizations, food industry firms and organizations, Congressional committees, land-grant college researchers, market research groups.

Data needs

Data comparable with 1965–66 survey data for food marketing categories and major foods, with as much detail on forms of foods and consumer characteristics as possible.

Forms for output

Survey reports with tables comparable to those in 1965–66 survey reports 1–17, but brief narratives of press-release type.

Brief articles and short bulletins focused on particular population groups and particular commodities. Data tapes without sampling unit identification.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
III. Development of food plant at several levels of cost:	
1. Description and uses of revised USDA food plans at several levels of cost.	To develop food plans for use in consumer education and in administration of food and welfare programs.
2. Food plans for specified family types.	

User groups

Government administrators and welfare agencies, mass media, extension staffs, consumer groups, home economics teachers.

Data needs

Carefully edited data on money value and quantities of individual foods consumed at home by families with various characteristics and improved measures of household size and nutrition units.

Forms of output

Bulletins, articles in USDA periodicals.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
IV. USDA food policies and programs relevant to:	
A. General public:	
1. Relationship of changes in income—food relationships and food resource allocations to major economic and social trends.	To appraise the impacts of inflation, economic growth, demographic changes on household food consumption.
2. Comparison of variations and changes in food consumption and nutrient supplies in U.S. with those for other developed countries.	To evaluate the current relative food and dietary situation of U.S. consumers in comparison with those in Western European countries and Japan and how inflation has changed relationships.
3. Relationship of changes in food patterns of individuals (a) to changes in consumer demand for food and food marketing services and (b) to changes in dietary adequacy.	To appraise the overall effects of changes in food supplies and other economic and social changes on food patterns of individuals, an aggregate consumer demand, and on dietary patterns and adequacy.
4. Identification of food problems of consumers grouped by family and individual characteristics.	To identify broad consumer groups with gross types of food and dietary problems.

User groups

Government administrators, Congressional committees, international food and agricultural organizations, consumer organizations, food industry researchers, food and health researchers.

Data needs

Data on food used by households at home in a week of 4 seasons and 1977 and by individuals based on 24-hour recalls to match spring 1965 data as well as diets for several days. Also nutrient supplies based on several sets of food data. Need alternative measures of household size and nutrition units so must get more complete counts of meals eaten by household members in week.

Forms for output

Articles in USDA periodicals and scientific journals. Brief bulletins. Detailed data tapes with foods classified on nutritional bases and with matching nutrient data for use by researchers in government agencies, universities, and private research organizations.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
B. Low income people:	
1. Allocation of food resources related to family size and composition and to stage in family life cycle.	To measure effects of demographic characteristics on food expenditures of low income people for use in planning and administering food programs.
2. Interrelationships among several aspects of poverty, food patterns, and adequacy of household diets and of diets of individual family members.	To measure the impact of poverty on diets and the possibilities for improvement.
3. Food consumption and dietary adequacy of households and individuals participating and not participating in government food and/or welfare programs.	To evaluate the effects on dietary adequacy of certain government programs.
4. Possible alternatives for improvements in diets of low-income individual and families.	To summarize the implications of relationships between dietary adequacy and specific food patterns for choices among alternative programs to increase food purchasing power.

User groups

Government administrators, Congressional committees, welfare agencies consumer organizations, special interest groups, university researchers.

Data needs

Money value and quantities of major foods and all foods consumed at home by households, their nutrient contents, and the family characteristics as well as counts of all meals (including snacks) eaten in a week at home and away. Also, detailed data on foods eaten, time and place of eating for every individual in household for number of days still to be determined. Careful measurement of income (possibly including nonmoney income) and of nonpurchased foods; need probing questions regarding current and recent participation in specific government programs.

Forms for output

Articles in USDA and professional periodicals. Short bulletins. Detailed data tapes for use by researchers in universities, other government agencies, and private research organizations.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
C. Selected groups of households and of individuals:	
1. Consumption of major foods and dietary problems of each selected population group and appraisal of their relationships.	To measure relationships of potentially important factors to food and dietary problems of selected groups such as blacks, Spanish Americans, farm families in particular regions.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
2. Potential benefits of specified minimal changes in food patterns of groups based on certain criteria (e.g., race, ethnic background, farm operators).	Starting from known dietary problems, examine variations in food patterns within group to determine cultural possibilities of minor changes to achieve dietary adequacy.

User groups

Government researchers and administrators, special interest groups, university researchers.

Data needs

Additional family characteristics such as race, ethnic background, religious food practices, occupation and education of all adults, identification of pregnancy, specification of ethnic foods.

Forms of output

Articles, short bulletins, data tapes for special groups.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
D. Programs of Food and Nutrition Service:	
1. Food consumption and dietary patterns of participants and of nonparticipants with comparable characteristics.	To appraise effects on diets of participation in FNS programs.
2. Multivariate analyses of critical factors in food and nutrient patterns of participating households and individuals and comparable nonparticipants.	To measure relative importance of socioeconomic factors related to program participation and to food patterns of participants and nonparticipants.
3. Cost-benefit analyses of alternative programs to improve dietary levels of specified population groups.	To identify criteria for evaluation of alternative dietary improvement programs and to evaluate their costs and benefits.

User groups

Government administrators, special interest groups, Congressional committees, health researchers.

Data needs

Detailed data on various forms of money and nonmoney income, program participation. Additional family characteristics and possibly some family value measures.

Forms of output

Articles, short bulletins, data tapes for low income households and individuals for use of researchers in other government agencies and universities.

EXAMPLES OF TOPICS IN PROBLEM-AREA	TIVES
V. Related to fishery products and game (National Marine Fisheries Service):	
A. Health related problems:	
1. Variations in consumption of particular species of fish and in intakes of microconstituents.	To have detailed data tapes for analysis of consumption patterns for fish to appraise potential health hazards of microconstituents.
2. Contributions of fish consumption to intakes of microconstituents.	

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
B. Market research:	
1. Socioeconomic factors related to variations and changes in household fish consumption.	To specify the structure of 1977 consumption market and to measure relationships of major factors to variations and trends in consumption.
2. Projections of consumer demand for major species and forms of fish and shellfish.	To make projections of consumer demand to help the fishing industry prepare for changes by shifts in investment in production and marketing facilities.

User groups

Government administrators and researchers, fisheries industries, ecologists, health researchers, consumer groups.

Data needs

Detailed data on several days' diets, as in HEW needs, and details on general types of fish and on specialty items containing fish, forms, place of consumption, seasonal variations.

Forms of output

Bulletins, articles, administrative reports, detailed data tapes.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
VI. Health related—HEW	
A. Food and Drug Administration's area of responsibility:	
1. Variations in intake of individual foods, nutrients, and specified harmful substances by individuals with specified characteristics.	To use detailed data tapes to evaluate possible effects of alternative administrative decisions such as maximum levels of chemicals or nutrient supplements or any other hazardous substance.
B. Center for Health Statistics, Public Health Service, NIH:	
1. Epidemiology of major dietary problems.	To appraise relationships between current diets and health problems of subgroups in the population.
2. Comparison of health survey findings re nutritional status and 24 hour diets with variations in individual food intakes based on 1977 survey.	

User groups

Government administrators, Congressional committees, health researchers, food and drug industries, consumer groups.

Data needs

Diets of individuals for as many days as possible without biasing food patterns or reporting. As much detail about foods used as respondents can report, especially re fortification, enrichment, additives. Need height, weight, and some health characteristics of individuals to relate food pattern data to health survey data.

Forms for output

Detailed data tapes for administrative use and for researchers' use in universities and private research organizations, articles, administrative reports.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
VII. Scientific problems related to:	
A. Sciences of food and nutrition:	
1. Variations in food consumption and dietary intake among families and individuals with varying characteristics.	To measure relationships among (a) individual and family characteristics and (b) variations in food consumption and (c) variations in intakes of major nutrients so as to provide solid basis for linking observed human behavior and experimental research.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
2. Changes in food patterns of selected sex-age groups and factors related to them.	To test hypotheses developed from cross-sections with data on changes between surveys in 1965 and 1977.
3. Factors related to dietary adequacy of individuals at various stages in life cycle.	To determine the extent to which the relationships of dietary adequacy to socioeconomic factors vary with age.
4. Evaluation of relative importance to dietary adequacy of consumers' food and nutrition knowledge, food industry practices, and government programs.	To improve the scientific basis for evaluation of alternative programs for dietary improvement especially to overcome food fad industry oversight and to evaluate programs such as nutrient labels.
5. Development and testing of generalizations regarding food consumption patterns and food-income relationships.	To develop scientific basis for projecting changes in consumption.
6. Evaluation of alternative approaches to solving dietary problems among teenagers, elderly people, and other specific population groups indicated by the 1977 survey and identification of needs for specified types of research.	Based on measurements of relationships and known patterns of variations, to identify ranges and possible changes in dietary intakes that might result from alternative approaches such as educational programs, fortification, genetic changes. Then identify areas for further research.
7. Effects of changes in RDA on evaluation of dietary adequacy.	To measure the impact of changes in RDA on proportions of the population falling below the standards.
8. Significance of major meal patterns for relationships between nutrient ratios in observed diets and comparisons with ratios derived from RDAs.	To appraise differences between ratios of nutrients implicit in Recommended Dietary Allowances and those derived from observed diets of particular sex-age groups.
9. Effects of revised procedure for calculating nutrition units on measures of variability in household diets and of their adequacy.	To measure the effects of combining age groups in households according to observed ratios to observed intakes of moderately active younger men instead of the ratios calculated from RDAs as well as using a possible new procedure for taking account of meals eaten away from home.

User groups

University teachers and researchers in foods and nutrition, researchers in government agencies and private research foundations concerned with food sciences, food economics, and human nutrition and health.

Data needs

Household data on food consumption comparable to those obtained in 1965–66 plus additional information on family characteristics, kinds of meals eaten away from home by each family member, matching 24-hour intakes by recall, and dietary data for individuals for additional days. Also a brief test of nutrition knowledge of homemakers.

Forms of output

Professional articles in scientific journals, research bulletins to report technical analyses and findings, detailed data tapes for use by other researchers.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
B. Food technology:	
1. Socioeconomic factors related to consumption of particular foods in different forms and with different characteristics.	To measure consumer demand for recent and potential technological developments.

2. Importance of changes over last decade in use of prepared foods to consumer demand and to changes in dietary adequacy.	To appraise consumer demand and relevance of technological developments to dietary improvement.
3. Projections of changes in consumer demand for food marketing services and for engineered foods.	To appraise possible future demand for products of technological research.

User groups

Government administrators, food technologists in food industries and universities, food industry planners.

Data needs

As detailed information as respondents can provide on forms and product characteristics of food consumed as well as consumption data consistent with earlier surveys and additional family characteristics and basic meal pattern information.

Forms for output

Articles in government periodicals and professional journals, special reports and bulletins, detailed data tapes with product and family characteristics.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
C. Consumer education (see also VI and VII A above):	
1. Food management behavior in 1977 of families with specified characteristics.	To measure factors related to different types of food management behavior in order to identify needs for consumer education and to plan educational programs.
2. Appraisal of variations in food buying practices of families with specified characteristics and of directions of changes.	To appraise consumer food buying problems and the priorities for consumer education.
3. Economies of scale in food buying measured by multivariate analyses.	To take into account major factors other than family size in appraising higher food costs of small families.
4. Benchmark data for self-appraisal of food allocations.	To answer consumer question: How do other families like us spend their food money?
5. Appraisal of relative costs of specific resources, such as nutrients, food processing, other food marketing services, home preparation time, used in food consumption subsystem of the family food economies.	To provide sound bases for consumer education in food buymanship to maximize consumer satisfaction.
6. Relationship of 1977 patterns of eating of families and individuals with selected characteristics to socio-economic factors and to dietary adequacy.	To measure relative importance of socioeconomic factors in variations in eating patterns and of eating patterns to dietary adequacy in order to focus educational efforts on key problems and particular to the content of educational programs.
7. Implications of changes in relationships among socioeconomic characteristics, food patterns, and dietary adequacy.	To contribute to improvements in focus and content of consumer education.
8. Effects of alternative measures of levels of food consumption and nutrient supplies and changes from 1965–66 to 1977 evaluation of needs for consumer education.	To evaluate the statistical bases and procedures available for measurement of variations and changes in diets in order to improve the rationale for consumer education.

User groups

Government administrators in local, state, and federal education; researchers and teachers in consumer education, consumer groups, legislative committees.

Data needs

Detailed information on processed forms of foods consumed, more information on family and homemaker characteristics, possibly some data on homemakers' time allocation for food preparation, data on meals eaten by individuals by place and time and items included for several days, possibly indications of consumer knowledge relative food costs.

Forms of output

Articles in government periodicals and professional journals, government bulletins at both technical and semipopular levels, detailed data tapes for use by university researchers.

D. Survey methodology:	
1. Variability of food intakes of major population groups in relation to shorter and longer time periods and appraisal of effects of alternative measures of food consumption.	To appraise the statistical significance of measurements based on one day intakes in comparison with data based on several days' diets. To evaluate relative validity of alternative measures of food consumption.
2. Evaluation of the effects of alternative measures of nutrient supplies and of nutrient standards on relationships of dietary adequacy to socioeconomic factors.	To appraise the statistical bases for measurements of variations and changes in diets and of factors related to them.
3. Comparison of levels of food consumption and diets measured by 1977 survey with estimates derived from food disappearance data.	To evaluate the reliability of alternative measures of food consumption and the statistical bases for analytical work.

User groups

Statisticians in government agencies, universities, food industries, and market research firms, as well as government and business administrators and researchers.

Data needs

Detailed data on consumption, dietary patterns, family characteristcs.

Forms of output

Articles in government and professional periodicals, statistical bulletin, detailed data tapes.

EXAMPLES OF TOPICS IN PROBLEM-AREA	OBJECTIVES
VIII. Income-related problems:	
A. Measurement of the incidence of poverty (HEW–SSA):	
1. Updated estimates of regional and urbanization distribution of the poor.	To provide public and government administrators with reliable information on incidence of poverty.
2. Family and economic characteristics of the elderly poor.	To provide supplementary information for public decision-making on programs for retirement income.
B. Evaluation of current income-maintenance programs (HEW–SSA, AOA, SRS, AFPE):	
1. Dietary adequacy and food program participation of households and individuals participating and not participating in specified programs such as SSA, SSI, AFDC.	To evaluate the impact on current income-maintenance programs on subsistence levels of specified population growth.

2. Evaluation of costs and benefits of alternative programs to assure minimum subsistence levels for specified population groups.	To provide government administrators and the Congress with economic appraisals of program alternatives, particularly income-maintenance vs. consumer food subsidies.

User groups

Statisticians, administrators and professional staffs of government agencies and universities and of private organizations concerned with public welfare of particular population groups.

Data needs

Supplementary samples of specified groups of households and individuals to obtain detailed information on participation and nonparticipation in Federal and state programs for food subsidies and for income maintenance.

Forms of output

Administrative reports, articles in government and professional periodical statistical bulletins.

APPENDIX O

BACKGROUND PAPER ON THE RECOMMENDATIONS OF CONFERENCES AND GROUPS RELATED TO NATIONAL NUTRITION POLICY, 1917–1974, FOR NATIONAL NUTRITION POLICY STUDY HEARINGS

[U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, MAY 1974]

ACKNOWLEDGEMENTS

This background paper was prepared by Mary C. Egan, Bureau of Community Health Services, Health Services Administration, Department of Health, Education, and Welfare. Acknowledgment is made of the invaluable assistance of staff of the United States Department of Agriculture, particularly Jane Porter, Historian, Economic Research Service, and staff of the Department of Health, Education, and Welfare, Health Services Administration, especially Frances Shoun, Margaret Phillips, Mona Biren, Margaret McMullen, and Debbie Hart, of the Bureau of Community Health Services.

MYRON A. MEHLMAN, Ph. D.,
Chairman, DHEW Nutrition Coordinating Committee.

60-843—75——14

INTRODUCTION

In preparing recommendations and seeking solutions to the nation's nutrition problems and needs, it is often helpful to view them in historical perspective—that is, in relation to the concerns and problems identified over time, the recommendations and solutions proposed, and the actions or programs which were implemented as well as those which "fell by the wayside" with no viable response or followup.

This summary paper highlights some of the recommendations related to nutrition at the national level made over the last half-century by various agencies, groups and organizations. In trying to evaluate their historical significance, it is helpful to recall the climate of the times is which they were issued or set forth. In other words, the concerns, problems and trends affecting the nutritional health of the nation, the resources available and the state of the art prevalent at any one time. Reflecting on the *source* of the recommendations as well as on the *possible rationale* which led to their existence is also useful.

The selected recommendations are presented by decades with a few comments relative to the events of the time which may have influenced their development. Because of limitations on the time available for compiling and editing this material, it was not possible to complete an exhaustive literature search. Rather, selected highlights are presented with the hope that they will help to deepen one's appreciation of the evolution of nutrition programs and services in the United States and one's understanding of the recurring themes of nutritional concerns which have spanned the years.

1917–1929

Awareness that many of the conditions responsible for rejection in Selective Service examinations were attributed to causes that might have been prevented or corrected by proper nutrition in early life and a desire to make conservation and efficient use of available food a national habit led to the calling of several major conferences related to foods and nutrition during the World War I years.

In April 1917, the Secretary of Agriculture called a meeting in St. Louis which was attended by State Commissioners of Agriculture, representatives of the Land Grant Colleges and the press. A similar conference was held at Berkeley, California, on April 13. Recommendations included the conservation of grains, meats, fats and sugar through campaigns to educate the public to eat more vegetables and dairy products.

In June and July 1917, The United States Food Administrator called representatives of agencies through which groups of people might be reached into conferences in order to initiate the food campaign to familiarize the American people with nutrition concepts.

In 1918, the *Children's Year Campaign* was launched under the leadership of the Children's Bureau and the Council of National Defense. This year culminated in a series of nine conferences called by the Children's Bureau in cities across the nation to formulate "minimum standards for the public protection of the health of mothers and children." Among minimum recommendations adopted by the conferences were the following relating to food and nutrition:

Adequate diets were to be taught by home visits to mothers of infants and pre-school children.

Centers for child health supervision were to include a nutrition clinic.

Open-air classes and rest periods should be established for pre-tuberculous and certain tuberculous children, and children with grave malnutrition.

In schools with more than 1,000 children, a full-time school nurse should give instruction in personal hygiene and diet, and make home visits to instruct mothers in principles of hygiene.

Treatment should be provided for all remediable defects, diseases, deformities and cases of malnutrition.

Nutrition classes should be conducted for physically subnormal children and mid-morning lunches or noon meals provided when necessary.

Adolescents should have an ample diet with special attention to growth-producing foods.

THE 1930's

These years witnessed an expansion in the knowledge of human nutrition, child growth and development, disease prevention and scientific agriculture. The serious economic depression eclipsed many other events of the time as did the periods of drought which threatened the adequacy of the nation's food supply.

In 1930, the *White House Conference on Child Health and Protection* was called. Among its tasks was "to make recommendations as to what ought to be done and how to do it, in order to make optimal nutrition possible for the children of our country." Nutrition received major attention nd eleven recommendations related to nutrition service for child health and protection were made. These were:

That nutrition work be recognized as a basic part of every district, county or community program for child health and protection.

That nutrition programs in public health and welfare agencies and educational systems be organized under accepted medical direction.

That a determined effort be made to create a nutrition consciousness through magazines, newspapers, exhibits, lectures, literature, the radio, etc.

That one or more qualified nutritionists, either on full-time or part-time, be connected with every child health program.

The nutrition service in a community be intelligently coordinated.

That every worker employed as a nutritionist have training in nutrition, chemistry of food and allied sciences, child psychology, and methods of teaching.

That facilities be developed for the training of nutritionists in preventive measures, social problems, food economics, etc.

That schools training public health and welfare workers other than nutritionists provide not less than fifteen to twenty hours of instruction covering nutrition fundamentals, food economics, and budgets.

That importance and value of nutrition work in the child health program be demonstrated.

That nutrition service be made available to communities unable to finance a complete nutrition program through stimulation of private and public agencies.

That a suitable committee be organized to further investigate the nature and scope of work which is being done in nutrition and the results obtained.

In October 1933, a *National Conference* was called by the Secretary of Labor to consider plans for stimulating nationwide interest in health of children in families affected by the economic depression.

Reductions in appropriations for child health services were known to be serious, and available evidence indicated an increase in the number of undernourished children and a decrease in the amount of medical care being given in some states and local communities, especially during the winter of 1932–33.

Recommendations from this conference included the institution of a nationwide program to locate undernourished children and to formulate methods of overcoming malnutrition by more adequate feeding and medical care. It was understood that states would modify suggestions made in accordance with their individual needs.

Concern and interest in nutrition was not confined to the United States only. In August 1937, a meeting was called of the Mixed Committee of the League of Nations on the Relation of Nutrition to Health, Agriculture, and Economic Policy.

Set up in 1935, the Mixed Committee on the Problem of Nutrition studied both the health and economic aspects of the nutrition problem. It included agriculture, economists and health experts, representatives of the Advisory Committee on Social Conditions, the International Labour Organization, and the International Institute of Agriculture. Its recommendations to Governments included the following:

Encourage and further support scientific study of nutrition problems with a view to ascertaining optimum nutrition for each country.

Take appropriate measures to ensure that the latest information about nutrition is included in the teaching of medical students and medical practitioners.

Conduct vigorous policy of education on popular nutrition for the instruction of the general public in this subject.

Support Health Organization of League in its technical committees work as well as in fields of public health and preventive medicine.

Facilitate and promote international cooperation in education.

Consider steps needed, at public charge or otherwise, to meet nutritional needs of low-income sections, particularly the means by which they might ensure that an adequate supply of food, espe-

cially safe milk, should be available for expectant and nursing mothers, infants, children, and adolescents.

Consider steps needed to meet nutritional needs of adults, unemployed or otherwise in distress.

Take steps to make food supplies available at prices within reach of all classes in the community while at the same time safeguarding the interests of the producers.

Set up standards of reference and specifications for grading food of all kinds according to quality.

Consider whether modification of their general economic and commercial policy is desirable in order to ensure adequate supplies of foodstuffs and in particular, to assist the reorientation of agricultural production necessary to satisfy the requirements of sound nutrition.

Coordinate work done by different authorities which affects nutrition of the people and in the absence of central authority, set up a special body for this purpose.

Collect information on food consumption.

THE 1940's

The forties brought continued advances in nutrition science, including the release of the first recommended dietary allowances, and in food technology, significant changes in family life with more women enternig the labor force and the many adjustments associated with World War II.

In 1940, the *White House Conference on Children in a Democracy* was held.

Coming after ten years of economic depression, this conference focused on the interplay of the concept of democracy and the consideration of particular needs of children. Nutrition recommendations forthcoming from this conference included:

Nutrition service when needed should be provided as a part of complete service for maternity care and care of newborn infants.

More effective nutrition services should be included in preventive and curative medical services for all infants and children through private resources or public funds.

The nutrition highlight of this decade was the landmark *National Nutrition Conference for Defense* held in Washington, D.C. in May 1941.

With the world situation stimulating interest in food and nutrition not only as a defense measure but as a part of a long time plan for the development of a stronger, healthier nation, the President convened the 1941 conference with the hope that it would "make recommendations to solve nutrition problems at national, state and community levels as an essential part of defense and as a part of a continuing national health and welfare program." During the sessions of the conference a State of Unlimited National Emergency was proclaimed and the conference pledged its full support in mobilizing national resources to meet the national emergency in addition to urging the following twelve lines of attack on malnourishment.

The use of Recommended Dietary Allowances as a general goal for good nutrition in the United States and as a yardstick by which to measure progress toward that goal.

Translation of the Recommended Dietary Allowances and other technical material into terms of foods and meals suitable for different economic levels and culture preferences.

Research to add to present knowledge of nutritional needs of individuals, nutritional status of groups, etc.

More widespread education of doctors, dentists, social service workers, teachers, and other professional workers in the newer knowledge of nutrition.

The mobilization of every educational method to spread the newer knowldege of nutrition among laymen.

Mobilization of all neighborhood, community, state and national organizations and services that can contribute in any way to raising the nutritional level of the people of the United States.

Vigorous and continued attack on the fundamental problems of unemployment, insecure employment, and rates of pay inadequate to maintain an American standard of living.

Full use of any practical devices, such as the so-called Stamp Plan, free school lunches, and low cost milk distribution which could bring nourishing, adequate meals to those who could not otherwise afford them, and at the same time help to distribute food surpluses at a fair return to the farmer.

Efforts to improve food distribution, including processing, marketing, packaging, and labeling, to bring about greater economies for the consumer.

Encouragement in all practical ways of greater production by agriculture of the foods neded in more abundance, according to the newer knowledge of nutrition in the average American diet.

Equally, encouragement in every practical way of more production for home use by rural people, especially those at low income levels.

The "enrichment" of certain staple food products, such as flour and bread, with nutritive elements that have been removed from them by modern milling and refining processes.

Except for food stamps and school lunch, the recommendations of this conference were well implemented. Due to food shortages, shortages of personnel and full employment, the food stamp plan was discontinued on March 1, 1943. The school lunch program was continued, but because of world need for food during World War II and the post war period, the program was not expanded. The National School Lunch Act, approved June 4, 1946, established this program on a continuing basis with an annual appropriation for cash grants to the states and bulk purchases by the United States Department of Agriculture for distribution to participating schools. The Abundant Foods Program, later known as the Plentiful Foods Program, an informational service, was begun in 1945. As a result of the cooperative interagency activities undertaken during the war, a nutrition planning committee made up of representatives of various federal agencies concerned with field activities in nutrition was established.

In 1942, the *Committee on Nutrition in Industry, National Research Council*, developed several recommendations relating to the diets and nutrition of defense workers. These included:

Nutritious meals of natural foods at prices the workers are accustomed to and can afford to pay should be made available in all

plants engaged in production for war or defense purposes, except in small plants where the worker may obtain such means from private sources in the free time at his disposal. Any meal served in the plant should contribute at least one-third of the daily requirements of specific nutrients recommended by the Food and Nutrition Board of the National Research Council.

The practice of serving food between meals to workers has given good results and is recommended. Milk, fruit and tomato juices are to be preferred as beverages, and other foods which are served should include the necessary nutrients. Thus, when bread is served it should be enriched white bread or a whole grain product.

Choice of foods served in the plant should be determined by a trained dietitian or nutritionist. Brief study of workers' diet will enable the dietitian to make up menus calculated to compensate for the ordinary inadequacies. The employment of a dietitian or nutritionist by the plant is recomemnded.

Suitable educational material should be presented in connection with cafeteria service or supplementary lunches to stimulate acceptance of the meals planned or the selection of good meals when there is a choice of foods.

Measure should be taken by the appropriate subdivision of government to condition nutritionally those classes of the population which are likely to become workers in war or defense industries.

It is recommended that adequately controlled studies be conducted in selected war or defense industries to determine the facts concerning the influence of diet and nutrition on health, working capacity, incidence of accidents, absenteeism and the psychological state (industrial unrest).

In April 1945, the Food and Nutrition Board, National Research Council, adopted a "Recommendation for Peacetime Continuation of the Industrial Nutrition Program." Activities suggested were the continuation of a governmental nutrition program for industrial workers beyond the conclusion of the war with the objective of protection of the health of the worker and his family. It was recommended that such a nutrition program

Be integrated with other industrial hygiene and medical programs and developed cooperatively with state and local health agencies.

Be correlated with similar nutrition programs for other groups in the community.

Include the development of effective educational techniques and the stimulating and sponsoring of research on food needs, food habits and the nutritional status of workers (with the needs of women workers calling for particular attention).

Include, whenever possible, surveys of the need for supplementation of the workers' diets.

Although not a conference per se, the *Survey of Nutrition Programs and Organization in Federal Agencies* conducted in 1945 by the Bureau of the Budget is worthy of mention.

This survey explored the question of the type of nutrition work which the Federal Government should undertake on a long term basis, and how that work should be organized. Expanding prewar plans for

raising national nutritional levels, the federal war nutrition program brought together the several public and private agencies concerned with nutrition at federal, state and local levels of government and attempted to stimulate and link together and to ascertain administrative accomplishments of the program which should be conserved for the future and to segregate any phases of the program suited only for wartime. Recommendations included the following:

Arrangements should be made for continuing the coordination of federal agencies on a long-term basis.

Federal agencies interested in the effectiveness of Federal-State health and education programs, ought to encourage the development of state interagency coordinating committees.

The need for coordinating nutrition programs of the bureaus and offices remains after the expiration of the War Order assigning such responsibility to the War Food Administrator. Peacetime responsibility for leadership should be clearly assigned by Executive Action.

The Federal Interagency Committee, made up of representatives of each of the federal agencies having field programs should be retained because of its long term possibilities and should form several subcommittees.

State agency coordination is desirable and ought to be continued, probably by a state interagency coordinating committee. Such committee should utilize the subcommittees and designate an individual to serve as secretary or staff assistant.

Federal bureaus and offices should encourage continued experimentation by the state agencies with various methods for developing the community programs designed to raise nutritional levels.

Some suitable arrangement is needed whereby national food industry advertisers can submit their advertising, prefably on a voluntary basis, to a central point in the Federal Government for clearance.

Federal bureaus and offices should contract for National Research Council's services, as needed, on a specific project by project basis.

The 1950's

The influence of nutrition and health on the productivity of population groups was becoming more appreciated. A revolution in productivity resulted in mounting agricultural surpluses. Food science and technology was moving ahead. Developments in transportation and communications were creating a still smaller world. Unemployment was less of a problem. More women were working and food consumption patterns were changing. The United States was becoming more aware of the needs of more of the groups at high nutritional risk in the population such as the elderly and the ill.

In 1950, the *Subcommittee on Diagnosis and Pathology of Nutritional Deficiences, Food and Nutrition Board, National Academy of Sciences*, made the following recommendations to increase the interest of both state and local health agencies in the opportunities for service to the public along nutritional lines and facilitate the process of getting nutrition education to both the general practitioner of medicine and the lay population.

The full application of the science of nutrition to public health requires the integration and coordination of activities relating to diets, general and special, to education, and to medical nutrition.

Ideally, all nutrition activities should be coordinated in a specific unit of the health department under the leadership of a physician with special training in nutrition and with the assistance of nutritionists and a biochemist.

Nutrition units would assume responsibility for initiating and directing programs appropriate to deal with nutrition problems in the state. They should serve in a consultant and advisory capacity to all divisions of the health departments, supervise the training of personnel in various aspects of nutrition and cooperate with agencies throughout the state in formulating a broad nutrition program.

A state nutrition council should be of great assistance in program planning and coordination of effort.

The nutrition unit of the state health department has a major responsibility in developing a program and services which are adequate for the protection and promotion of nutritional health of the people.

That same year, the *Midcentury White House Conference on Children and Youth* was called. The purpose of this conference was to consider how we can develop in children the mental, emotional and spiritual qualities essential to individual happiness and to responsible citizenship and what physical, economic and social conditions are deemed necessary to this development. Among the numerous recommendations was the following specifically related to nutrition:

> That school lunches be provided and that children unable to pay for their lunches be furnished them free, without being differentiated from the children who pay.

In 1952, the National Food and Nutrition Institute was held in Washington. The eleven years that had elapsed between this conference and its predecessor apparently saw great improvement in the nutritional status of the United States population. Representatives of the medical profession reported that it was difficult to find a clinical case of nutritional disease to study. The incidence of vitamin deficiency disease began to decline soon after the national program for the enrichment of white bread was inaugurated.

The conference, basking in these optimistic reports, turned its attention to obesity, the degenerative diseases, and combating food quackery. However, certain other problem areas were noted, including the need for more research on standards for evaluating nutritional status, the slight but ominous decline in the production and consumption of dairy products, and the need for a continuous educational effort, particularly with school children, to maintain nutritional awareness in succeeding generations.

Recommendations forthcoming from this conference included:

> That greater quantities of nonfat milk solids be channeled into human consumption and more effective use made of this valuable food.
>
> That more attention be directed to the consumption of foods that are natural sources and good carriers of calcium and that enrichment of bread with calcium be considered.

That more attention be given to inclusion of nutrition information in food distribution programs.

That there be more coordination between federal, state and local agencies in relation to emergency food planning.

That attention be given to multiple approaches to achieving good nutritional status, e.g., adequate income, enrichment and fortification, good health care, adequate therapeutic services, etc.

That more careful planning be done for effective evaluation of nutrition education.

That more training in nutrition be provided for school administrators, teachers, etc.

That more attention be directed to the role of nutrition in dealing with chronic disease.

That consideration be given to changing the methods of conducting hearings on food standards.

That food additives be shown to be safe before used in foods.

That nutrition programs be coordinated for maximum effectiveness.

In April 1957, the *Third National Nutrition Education Conference* was convened with the theme of increasing the effectiveness of nutrition education. Suggestions for improvement in nutrition education included training in nutrition education for teachers, health workers, social workers, and school lunch personnel; concentration of effort on preadolescent youth; and correlation of nutrition education with general education, with peer group leaders such as athletes, with participatory democracy in education, and with enjoyment of food. The more effective use of the mass media was stressed and attention was focused on accommodating desirable nutritional patterns to ethnic and sociocultural food customs. At several sessions the question of the effect of advertising on food consumption patterns was raised, for example: "It is really very, very interesting as well as appalling sometimes to see how much parents' selection of various foods is determined by children's requests based on what they hear on television or radio."

Specific recommendations were as follows:

That the United States Office of Education encourage states to make nutrition education a part of the elementary teacher's preparation. That information as to where this is now being done be secured and published in Nutrition Committee News.

That a conference similar to this one be called for leaders in elementary and secondary education in order to explore ways of making nutrition education more effective and incorporating it into the teacher education program.

That the Interagency Committee consider the advisability of sponsoring or promoting regional conferences in nutrition education followed by state conferences.

That the conference go on record as favoring more emphasis on nutrition education during medical and dental training.

That more nutrition information in simple, nontechnical language be made available to the lay public in the form of popular leaflets and magazine articles.

That each Nutrition Council serve as a clearing house on information and misinformation on nutrition and take responsibility for keeping the public informed.

That state and local nutrition committees sponsor and encourage additional refresher courses in nutrition.

In 1958, the *National Conference on Nursing Homes and Homes for the Aged* was called by the Public Health Service. This conference was concerned with the increasing number of the Nation's chronically ill and infirm aged being cared for in nursing homes and homes for the aged. Fourteen recommendations were made to improve nutrition services for those who use such facilities. These included the following:

That nutritional needs of persons should be met in accordance with the Recommended Dietary Allowances adjusted for the population concerned. At least three meals per day should be provided with not more than a 14-hour span between a substantial evening meal and breakfast.

That food service should meet the nutritional needs of the patients and residents through foods. Nutrient concentrates should be given only on the prescription of a physician.

Any processed foods served should be processed by safe and approved methods—foods should be prepared in ways that conserve nutritive value.

The licensing agency should assume responsibility for education and training in all phases of food service for all personnel in nursing homes and homes for the aged.

A national project should be conducted to develop a cost accounting system specifically for such facilities and appropriate forms developed.

Further studies of nutritional requirements of the aged in these facilities should be encouraged.

The 1960's

In this interval poverty in America was rediscovered. The "People Left Behind" in the general increasing affluence were not immune to the revolution of rising expectations. Measures during the 1960's to upgrade the diets of the poor included the re-establishment of the food-stamp plan and the expansion of the school lunch program. That these programs failed to reach the poorest of the poor had become evident to the American public through press coverage of several investigations culminating with the 1968 report, "Hunger, U.S.A." by the Citizens Board of Inquiry into Hunger and Malnutrition in the United States. More emphasis was being given to research: chronic illness was a problem of an increasing number of Americans, and the use of mass media was growing, etc.

In 1960 the *White House Conference on Children and Youth* was called with a theme "to promote opportunities for children and youth to realize their full potential for a creative life in freedom and dignity." This conference's recommendations relating to nutrition included the following:

Include health education and nutrition in the school curriculum at the local level.

Develop information programs to educate adolescents in sound nutritional attitudes and practices.

Emphasize to adolescent girls the importance of nutrition in preparation for motherhood.

Inform parents and others in charge of feeding children, of nutritional requirements as recommended by professional authorities for the growth and development of children.

Alert parents to dangers of fad diets and excessive intake of certain vitamins or supplements or "health foods."

The Year 1961 *Brought the First White House Conference on Aging*. An awareness of the growing importance of the needs and problems of the Nation's older citizens led to this nationwide citizens' forum designed to focus public attention on the problems and potentials of older Americans. Among the recommendations relating to nutrition were:

Dietary, feeding, and dental services—including public education programs aimed at the prevention and relief of nutritional problems which are a major preventible cause of disability in the aged—should be considered among the services in organized community programs.

Nutrition programs should be established as a part of health maintenance for the aged.

Education for older adults should help them to better understand their peculiar health needs as older individuals, including instruction in dietary requirements.

All health personnel (including nutritionists) should have knowledge of the process of aging and its health implications.

The impact of the presentations of the mass media on habits of nutrition should be more fully assessed.

Public Health Service and the Office of Education should devise more effective means of disseminating to the community and school population, factual information on nutrition.

In 1961 a conference was held on *The Role of State Health Departments in Nutrition Research* sponsored by the American Public Health Association and the Association of State and Territorial Public Health Nutrition Directors. It focused on exploring the needs in nutrition research as related to public health and defining the role of the State Health Departments in such research. Recommendations included:

Recognition by State health officers that nutrition enters into many health programs and should receive appropriate consideration including the designation of a competent staff member to coordinate research activities, appointment of an nutrition advisory committee to assist in formulating research plans and coordination and appropriation of moneys to support health research related to nutrition.

Preparation of well-qualified nutrition research personnel for leadership and training in research methods for nutrition staff.

Integration of nutrition research with ongoing or proposed health programs and possible use of health department as community laboratory by university research group.

In 1963 the Food and Nutrition Board, National Research Council issued *Recommendations on Administrative Policies for International Food and Nutrition Programs*.

Reorganizing the need for effective action programs to meet urgent food and nutrition deficiencies in many developing areas of the world, the Board's recommendations included:

The institution and support of a comprehensive program in

nutrition and food technology by the Agency for International Development and other federal agencies authorized to meet this critical need for a coordinated and sustained program and appointment of two top level executives to insure coordination with other government agencies.

The establishment of a small, high-level advisory committee or commission to assist the above executive.

The provision for support of the Interdepartmental Committee on Nutrition for National Development and for followup programs to build on their initial surveys.

The primary focus in United States foreign policy as it relates to foods and nutrition being on prevention of serious malnutrition among children, particularly from age of weaning to five years.

A diligent regard for encouraging food production for domestic use or export.

Greater flexibility and coordination in the use of Public Law 480 funds, particularly in support of research that would facilitate action programs and training of personnel to serve within newly developing areas.

The provision of more guidance in food processing and distribution as well as in sanitation and pure food control to newly developing countries.

Early in his administration President Nixon called the *White House Conference on Food, Nutrition and Health* held in 1969 which was intended to focus national attention and national resources on our country's remaining and changing nutrition problems. The full conference participation of over 3,000 persons provided the broadest possible coverage ranging from industry representatives to the very poorest themselves. Major concerns were:

1. How do we insure continuing surveillance of the state of nutrition?
2. What should be done to improve the nutrition of our more vulnerable group?
3. How do we monitor the continued wholesomeness and nutritional value of our foods?
4. How do we improve nutrition teaching in our schools and what programs of popular education do we need to better inform the public of proper food buying and food consumption habits?
5. What should be done to improve Federal programs that affect nutrition?

The conference sessions resulted in thousands of recommendations which are summarized below:

Establishment of a system for surveillance and monitoring of the state of nutrition of the American people. In addition to this fact-gathering activity for planning and assessing the effectiveness of nutrition services, better coordination of nutrition at the national level, development of a national nutrition policy and focus of responsibility at a high level were also recommended.

Giving more attention to the Nutrition of Vulnerable Groups. Emphasis was given to the need for feeding programs and income support for vulnerable groups, especially among the poor, including pregnant and nursing women and infants, children and adolescents, the aging, the sick, and special disadvantaged population

groups. Also emphasized were the desirability of more attention to nutritional care in health programs; the need for nutrition education (but not as a replacement for food or money); and the overhaul of the adequacy of nutrition manpower to deliver nutrition services.

Action by industry and government to provide more product information to the public and improve the adequacy, quality and safety of the food supply. Called for was simplification of legislation; greater innovation by industry in the development of new and better foods; insuring better protection of the consumer including improved food labeling; and expansion of research concerned with food production.

Expansion of Nutrition Education Programs. Emphasis was given to the development of a comprehensive and sequential program of nutrition education as an integral part of the curriculum of every school; improved preparation of all disciplines responsible for nutrition education; effective involvement of parents and community; support of training programs for nutrition manpower; development of a large scale nutrition information campaign and the improved use of mass media techniques.

Improving the Food Delivery and Distribution System. Recommendations related to basic improvements in the clarification, administration, and level of support in various food programs; more consideration of family as the basic unit for the delivery of food; improvement and expansion of the school feeding program to reach all children and better meet community needs, and more coordination and unification of food service operations.

Encouraging and supporting voluntary action by private groups and community based organizations. Suggested action related to an expansion of vocational-technical training programs to improve skills for job earning; giving high priority to agriculture modernization efforts; development of various approaches to encourage development of better food store facilities in low-income areas; more coordination between industry, community, and consumer organizations to provide meaningful information in foods and nutrition and the development of a Nutrition Communications Council.

Some parts of these recommendations have been implemented to a greater or lesser degree. To cite a few accomplishments, there has been a liberalization and expansion of the food stamp program and child feeding programs. A start has been made on food delivery programs for the aged. Industry has taken some initiatives in food lebeling, open dating, unit pricing, and the marketing of new, highly nutritive foods. Government, together with industry and voluntary organizations has made some strides in the development of a nutrition information campaign and improved use of mass media.

The 1970's

Since we are less than halfway through this decade, it is impossible to give a complete picture of the period. However, one can see a change in the composition of the population with a declining number of newborn infants and larger numbers of elderly persons; a growing concern with energy supplies and environmental pollution; an in-

crease in leisure hours and growth in recreational pursuits; and a strengthening of international relations, to mention but a few signs of the times.

Followup of the 1969 White House Conference on Food, Nutrition and Health was continued, and additional recomendations relevant to nutrition were forthcoming from numerous conferences and groups such as the following:

The *Committee on Maternal Nutrition*, National Academy of Science in 1970, concerned about the relatively high neonatal and infant mortality rates in the United States, made some important recommendations related to the role of nutrition in human reproduction. These included:

All officials responsible for planning and implementing food programs should bear in mind that their physiological needs place infants, children, adolescents and pregnant women in top priority.

Medical school curricula should be strengthened to provide solid, scientific education in nutrition and its relation to health.

More qualified nutrition personnel should be available in community health services to act as consultants and devise ways of increasing direct services to individuals.

Curricula of elementary and secondary schools should provide for teaching basic facts of nutrition and should encourage children and young people to develop good eating habits and to appreciate the value of a good diet.

Public health agencies and health professions should assume greater responsibility for disseminating sound nutrition information.

Emphasis should be placed on a single standard of high-quality maternity care, including nutrition for all pregnant women.

Research should place more priority on the study of normal physiological adjustments that take place during pregnancy. There should be close cooperation between epidemologists, laboratory investigators and clinical research workers.

The 1970 *White House Conference on Children* was designed to define problems, seek new knowledge, evaluate past success and failure and outline alterntative courses of action.

Recommendations related to nutrition concerned many of the 24 pre-Conference forums and the 4,000 conference delegates. Among action prescribed was the following:

A comprehensive family assistance program based upon a family income standard that will assure reasonable economic security.

Vigorous enforcement of existing standards for nutritive value of foods.

Expansion and improvement of existing food programs.

Inclusion of nutritionists as part of health teams in direct service or consultant roles.

Promotion of mandatory legislation in each state for a health and safety education (including nutrition) to be included in the regular instruction in all schools, public and private, from kindergarten through high school.

Provision of family life education for parents or prospective parents including information on child development, nutrition, home management, etc.

The *White House Conference on Youth* held in April 1971 included several recommendations related to *Hunger and Health Care*. Among them were:

That the President declare a national hunger emergency and use the authority he has to assure that no American in need goes without federal food assistance.

That the Food Stamp Program be expanded to every appropriate political subdivision in the Nation.

That the budget request for fiscal year 1972 Food Stamp Program be increased to $2.75 billion to accomplish the above recommendations and $3.5 billion for fiscal year 1973.

That the Department of Agriculture henceforth base Food Stamp value of coupon allotment on the low-cost Food Plan ($134 per month for a family of four).

That "cash-out" of Food Stamps in a guaranteed income proposal be opposed unless the cash-out is on a dollar for dollar basis.

In 1971, *The White House Conference on Aging* sought to crystallize in national policy the dimensions of a society in which older Americans may "fitly live" while completing the adventure of life with fulfillment and serenity.

Among recommendations for action developed by the Nutrition Section of the Conference were the following:

Allocation of the major portion of federal funds for action programs to rehabilitate the malnourished aged and to prevent malnutrition among those approaching old age.

Establishment and more strict enforcement of high standards with specific regulations for the food and nutrition services provided by institutions and home care agencies that receive any direct or indirect federal funds and the requirement of nutrition services and nutrition counseling as a component of all health delivery systems, including such plans as Medicare, Medicaid, health maintenance organizations, health services, extended care facilities and health prevention programs.

Concentration of government nutrition resources on providing food assistance to those in need with a significant portion of these resources designated for nutrition education of all consumers, especially the aged and to the education by qualified nutritionists of those who serve the consumer.

Offering of a variety of options for meals for older persons and requiring all federally-assisted housing developments to include services or to insure that sources are available for feeding of elderly residents and for those for whom the development is accessible.

Federal government assuming responsibility for making adequate nutrition available to all elderly persons in the United States and its possessions. (Minimum adequate incomes suggested with food assistance used in the interim.)

The establishment and enforcement of such standards as are necessary to insure the safety and wholesomeness of our national food supply, as well as improve nutritive value.

In 1971 an *International Conference on Nutrition, National Development and Planning* was held in Washington, D.C. Participants

60-843—75——15

came from all over the world with the primary purpose of exploring the place of large scale nutrition programs in planning for national development, particularly in the developing countries and among low-income groups. This conference resulted in some of the following recommendations:

There is a need for changes in the roles of the development planner and of the nutritionist. The modern planner should have a major role in improving nutrition. Seminars, Conferences and interchanges betwen nutritionists and planners will be very helpful and deserve much further attention.

The training of nutritionists should take into account the wider scope of the nutritionist, including informing and giving technical advice to planners. The training program should provide for study of political science, techniques of decision-making and policy-making, modern managerial methods, etc.

With the theme of Youth-Nutrition-Community, the 1971 *National Nutrition Education Conference* was held in Washington. It was the sixth in a series and focused on the school-aged youth and nutrition in his community. Action recommended at this conference included:

More consideration of the adolescent in terms of his stage of growth and development, rather than by age.

Special attention to those disease problems of youth which have special complications and risks and to those which hold important consequences for later life.

Greater appreciation and understanding of the many factors that influence decision-making by youth relative to nutrition, e.g., the prevalence of misinformation, the distrust of certain youth and adults of the science of nutrition and technology as related to the food supply, etc.

More involvement of youth in planning and presenting nutrition programs and more effort to reach youth not in school with nutrition information.

Inclusion of nutrition in the school curriculum in a sequential manner and more nutrition education of teachers.

In 1972 the *Study Commission on Dietetics*, using the contributions of many people to arrive at specific recommendations related to the problems, opportunities, and needs of the field of dietetics, made six major recommendations. Among them were:

That the basic education of dietetics be designed as a four-year curriculum resulting in a bachelor's degree and including both the didactic learning and introductory clinical experience necessary for beginning practice as a dietitian.

That the undergraduate curriculum be built around the central theme of the Human Life Cycle.

Summary

As one reflects upon the recommendations relative to nutrition made by some of the conferences and groups convened for well over half a century, one becomes aware of their striking similarity and recurring themes.

We know that varying degrees of progress have been made in implementing some of the recommendations. For excellent reasons, many

have not been acted upon. Others have served to stimulate nutrition programs and services either successfully completed or presently under way.

Perhaps what is needed is a detailed in-depth analysis of why some recommendations have continued to be of concern over a span of years and why satisfactory resolution or action has not been possible. Have the recommendations been practical? Were they deserving of national priority? Was the necessary leadership and adequate resources available? It is by studying such questions as these, that one may unlock the "secret to success" and thus provide a sound basis for a national nutrition policy.

APPENDIX P

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., June 20, 1972.

Note to Dr. Lynn, Dr. Marland and Mr. Kurzman
Subject: Attached *New York Times* Article on Nutritional Illiteracy.

The Secretary has seen the attached *New York Times* article and has asked: "Is this something we should consider?"

P should provide a response to the Secretary's query by June 26. This response should be coordinated with OE and L.

Many thanks.

T. P. REUTERSHAN,
Assistant Executive Secretary,
(Health and Consumers Affairs).

Attachment.

[From the New York Times, June 14, 1972]

NUTRITIONAL ILLITERACY

(By Henry J. Heinz 2d)

We are a nation of nutritional illiterates. Despite a wealth of scientific knowledge of nutrition, too many of us do not know what a balanced diet is, and are ignorant of the essential nutrients we need and the foods that contain them. We have an abundant food supply, yet our eating habits are deteriorating. And it is not just the poor who are affected, though lower-income families undoubtedly fare less well nutritionally than the average.

The U.S. Department of Agriculture reports that the percentage of households that met or exceeded the department's definition of a good diet dropped from 60 to 50 percent from 1955 to 1965. Nine percent of families with incomes over $10,000 had diets rated poor. The deficiencies broadened over the decade due to decreased use of milk, milk products, vegetables and fruits, and to an increase in snacking. A "ten-state survey" recently completed by the U.S. Public Health Service shows that malnutrition is spread widely across the United States and that anemia due to iron deficiency is a definite public health problem, especially among women.

Malnutrition—and I include overeating as well as insufficient food—is insidious. Its effects are often not immediately apparent. Obesity, for example, constitutes a definite risk in cardiovascular and other metabolic diseases and reflects long-term poor eating habits.

In the case of children and infants, food deficiencies are particularly serious. Recent studies sponsored by The Nutrition Foundation, which has pioneered nutrition research for 30 years, indicate that malnutrition in infants may cause permanent mental and physical retardation.

Looking back, we see that the United States suffered from endemic malnutrition as late as 1940— widespread pellagra, rickets, goiter.

We made great progress from the mid-forties to the mid-fifties. By the nineteen-sixties, however, our progress had not only halted but we began to slip backward.

Our problem today is primarily one of ignorance compounded by a confusing array of unscientific books and articles, some very well publicized, giving poor nutritional advice. Food faddism is becoming a national problem. Advocates of everything from dandelion coffee, unpasteurized milk and organic gardening to the Zen macrobiotic diet are persuading thousands to adopt foolish and costly eating habits.

Many followers of the food faddists feel they have been misled by the advertising claims of food and beverage firms. At least their efforts to change their eating habits indicate that they want to improve their food intake, but they do not know or understand modern food science and technology and therefore, distrust processing and modern agricultural methods. Unfortunately, in their choice of natural or so-called organic foods, they often display alarming and self-damaging ignorance of nutrition. We have extensive knowledge in nutrition today, but, unfortunately, the faddists and their converts are not benefiting from it.

Changing life styles also contribute to our worsening eating habits. Many families no longer eat together. The housewife loses her influence and all family members suffer. Individuals who live alone or prepare their own meals often subsist on a series of unplanned,unbalanced meals or snacks.

For those living in poverty more adequate Federal food programs must be accompanied by meaningful education. For the majority, nutrition education is sorely needed, but they are not getting it today. There are, to be sure, many programs on nutrition education in effect in the United States, but they are too dispersed: the United States Department of Agriculture has thousands of "nutrition aides" who give basic nutritional advice to mothers; it prints and distributes literature on the subject; a few school systems and universities provide some training in nutrition. But most do nothing. And nowhere, to my knowledge, is there a coordinated approach to teaching the subject of nutrition.

We need nutrition education programs at the state and local levels aimed especially at children, teachers in service and in training, young and expectant mothers, and health personnel at all levels.

To implement such programs, state laws requiring the inclusion of nutrition in the curricula of elementary and secondary schools and in teacher training need to be passed and effectively implemented; better teaching materials have to be developed and, as a supporting activity, television and radio must be used imaginatively.

The entire effort must be tailored to our changing way of life. If some people prefer to subsist on a combination of snacks and meals taken at odd hours, that is their choice, but they can get a nutritional balance in their food, as those who eat the traditional three square meals a day, if they know what they need, choose wisely and supplement their snacks with milk, fruits and vegetables.

Nutrition education must become a priority concern of state and local governments and all schools. The food and beverage industries should support this effort as well as follow policies of scrupulous accuracy in advertising and labeling. In addition, they can contribute to better nutrition by following sound principles of nutrition in the formulation of improved foods.

APPENDIX Q

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF THE SECRETARY,
July 14, 1972.

Memorandum.
To: The Secretary through OS/ES——
From: Assistant Secretary for Planning and Evaluation
Subject: New York Times Article on Nutritional Illiteracy—Information Memorandum.

In accordance with your request for the comments of P, OE, and L on the subject article by Henry J. Heinz, there are attached the following: a memorandum from Elsa Schneider of OE to me (Tab B); and a memorandum from Judith Pitney to Mr. Kurzman, which Mr. Kurzman has cleared (Tab C).[1]

In addition, P has the following comment. From our inquiries in responding to this request and from past experience with materials on nutrition, we are impressed with the need for better coordination of the range of nutritional activities now being conducted within the Department. The Center for Disease Control, Indian Health Service, Administration on Aging, Office of Education, Maternal and Child Health Service, Food and Drug Administration, and the Office of Child Development are among the agencies within the Department with responsibilities for aspects of nutrition programs. Although some of these agencies may relate to others on an informal basis, there is no formal mechanism for *all* the concerned agencies to meet together. An intra-Departmental committee on an ongoing basis is very much needed if the Department is to cope effectively with the increasing range of problems in the nutritional field, as touched on in Mr. Heinz' article.

Such a coordinating committee has been recommended by a group working on a nutrition strategy for the Department in response to a policy question identified during the FY 1973 planning process.

[1] Tab B and C not included.

LAURENCE E. LYNN, Jr.

(221)

APPENDIX R

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF THE SECRETARY,
Washington, D.C., July 31, 1972.

Note to Dr. Laurence E. Lynn, Jr.
Subject: Nutritional Illiteracy.

The Secretary has seen your July 14 Information Memorandum and has noted his agreement with your statement concerning the need for better intra and interdepartmental coordination of nutrition education activities.

He has also noted "Let's do it" with regard to the suggestion that a coordinating committee be established. Please coordinate with the Department Committee Management Officer on steps necessary to establishment of this committee. Consideration should be given to creation of an *interdepartmental* committee, in light of the need for better coordination with other Federal Departments and Agencies.

Please forward to the Secretary by August 15 a progress report on establishment of this committee.

Many thanks.

T. P. REUTERSHAN,
Assistant Executive Secretary
(Health and Consumer Affairs).

(223)

APPENDIX S

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF THE SECRETARY,
September 22, 1972.

Memorandum.
To: The Secretary through: OS/ES ——
From: Assistant Secretary for Planning and Evaluation.
Subject: Coordination of Nutrition Activities—Action Memorandum.

I. PURPOSE

To lay out recommendations for the implementation of a nutrition coordination focus within the Office of the Secretary.

II. BACKGROUND

On July 31 you directed P to prepare recommendations for the establishment of a coordinating committee on nutrition (Tab B). Since then, we have reviewed the Department's activities in nutrition and have found that its programs are widely spead throughout the Department and vary significantly in their focus.

There are four categories of nutrition programs in HEW:

programs which provide meals for a selected client group,
programs which are designed to teach people how to eat the right foods,
personnel training programs, and
research, both on food standards and on the relationship between nutrition and specific health problems.

Listed below are the agencies with programs that are known to have activities in these categories:

Food Provision:
- OCD
- AOA
- CSA
- Indian Health Service

Education:
- OCD
- AOA
- MCHS
- Indian Health Service
- Community Health Service
- CDC
- NIMH
- OE

Training:
- OE
- MCHS

Research:
- MCHS
- CDC
- NIMH
- FDA
- NIH

Approximately $219 million is budgeted for these activities in FY 1973. An inventory of Federal nutrition activites, including FY 1973 funding requests, is attached at Tab C.

III. DISCUSSION

The list above contains only those programs which deal directly with nutrition, although it is generally a secondary aspect of each activity. Most of these efforts are preventive in nature, either providing balanced diets for certain client groups, or education to help people to feed themselves adequately. Secondary effects of malnutrition, such as increased susceptibility to infection and impaired learning ability, may account for a sizeable, but currently unknown, portion of other HEW program expenditures. Partly because of the difficulty of diagnosing it, little effort goes into the identification and treatment of subclinical malnutrition. With the notable exception of Maternal and Infant Care projects, which monitor the nutritional status of their patients, treatment in the health system tends to focus on acute care, and in the educational system on providing educational remedies for learning problems.

Wide variation in individual needs for specific nutrients, as well as the difficulty of isolating effects of poor nutrition from other medical and psychological difficulties, have combined to discourage a direct attack on the problem. The establishment of a viable coordinating focus in the Department for nutrition policy, program, and research is a step toward a concerted attack on nutritional problems.

IV. RECOMMENDATIONS

Although there are many psychological, social, and economic variables which interact with nutritional status, the issue is fundamentally one of health. Therefore, I recommend that H be given lead responsibility for the coordination of nutrition activities.

H should set up a nutrition coordinating committee within its office and assume the responsibility for chairing it. All interested agencies listed previously, and appropriate OS offices should participate.

The following activities are suggested for the committee to undertake:

Make Department-wide policy recommendations to the Secretary regarding nutrition.

Make recommendations regarding the substance and emphasis of specific nutrition programs and research projects, and initiate recommendations to fill gaps in Department activities relating to nutrition.

Coordinate activities which involve several agencies, establish uniform nutritional standards wherever necessary, and provide guidance for long term planning.

Coordinate the research segment of the Department with the program segment so that relevant research findings are utilized in program implementation and that research is done in areas where the program designers have a need for knowledge.

Work toward integration of nutrition services in preventative and health maintenance programs.

Review proposed legislation relating to the nutrition activities of the Department.

Serve as liaison with other Departments and agencies who have nutrition activities, provide HEW representation on Interdepartmental nutrition groups, and encourage Interdepartmental cooperation in the implementation of any overlapping or supplementary activities.

After consideration of these and other possible activities, H shall submit a report on the establishment of the committee, including the functions, by November 30, 1972.

Decision:

Approved _____ Disapproved _____ Date _____

Reassign to the Interagency committee responsibility for providing DHEW representation on all Interdepartmental nutrition groups.

Decision:

Approved _____ Disapproved _____ Date _____

I recommend that you sign the attached memo to the Assistant Secretaries and Agency Heads (Tab A) assigning lead responsibility for nutrition to H and describing the tasks involved.

LAURENCE E. LYNN, JR.

Enclosures.

60-843—75——16

APPENDIX T

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF THE SECRETARY,
October 24, 1972.

Memorandum.
To: Assistant Secretaries; Agency Heads.
From: The Secretary.
Subject: Coordination of Departmental Nutrition Activities.

A number of disparate programs and research efforts which relate to nutrition are being pursued currently in the Department. Nutrition is a supplemental component, in many cases, to other widely varying program goals.

To provide a central focus for nutrition in the Department, I am assigning H lead responsibility in the area. H shall be responsible for convening, chairing, and providing staff support for a Departmental Nutrition Coordinating Committee, which includes all interested agencies and offices within DHEW. H, with the Committee members, shall develop by November 30 a proposed charter for the Committee which assures genuine research, program, and policy coordination. This Committee, with its base in H, should be considered the central DHEW focus for nutritional policy. All nutrition-oriented arrangements with other Departments or agencies shall be reviewed by H, and DHEW representatives to Interagency groups shall be included among the Committee's members.

Despite the difficulty of diagnosing and treating subclinical malnutrition, I have no doubt that more intense concentration on the problem could markedly improve our effectiveness in eliminating malnutrition.

Please designate a member of your staff to serve as your representative to the Committee, and notify Dr. DuVal's office of your selection as soon as possible.

(229)

APPENDIX U

Department of Health, Education, and Welfare

CHARTER

Nutrition Coordinating Committee of DHEW

PURPOSE

Activities in support of the improvement of the nutritional status of the American people are carried out throughout DHEW, thus necessitating a Departmental coordinating committee. The purpose of the Nutrition Coordinating Committee of DHEW is to provide a central focus for nutrition in the Department and to promote research, policy, and program coordination.

AUTHORITY

The Committee is established under authorization of a memorandum dated October 24, 1972 from the Secretary to Assistant Secretaries and Agency Heads entitled, "Coordination of Departmental Nutrition Activities."

FUNCTION

The Committee will advise and make recommendations to the Assistant Secretary for Health in areas relating to nutrition. Areas of concern to the Committee will include:

(1) The development of Department-wide policies relating to nutrition.

(2) The recognition and incorporation of nutrition services in the development of Departmental programs.

(3) The coordination of nutrition activities among agencies in the Department and the identification of gaps and overlaps relating to nutrition activities.

(4) The development of criteria for and review of agency nutrition program guidelines.

(5) The effective inter-relationship of research findings and program implementation.

(6) The review of proposed legislation and regulations where Departmental policies may be at stake.

(7) The development of liaison with other Departments and agencies who have nutrition activities and the encouragement of inter-Departmental cooperation.

STRUCTURE

Consists of a chairperson to be appointed by the Assistant Secretary for Health, and representatives of the following offices and agencies in DHEW:

Office of Assistant Secretary for Health

Office of Assistant Secretary for Administration and Management

Office of Assistant Secretary Comptroller
Office of Assistant Secretary for Legislation
Office of Assistant Secretary for Planning and Evaluation
Office of Assistant Secretary for Community and Field Services
Office of Assistant Secretary for Public Affairs
Office of General Counsel
Office of Child Development
Office for Civil Rights
Food and Drug Administration
Health Services and Mental Health Administration
National Institutes of Health
Social and Rehabilitation Service
Social Security Administration
Office of Education and National Institute of Education

Management and staff services will be provided by the Director, Center for Disease Control.

MEETINGS

Meetings will be held bi-monthly or at the call of eth chairman. Minutes of meetings shall contain, as a minimum, a record of persons present; a description of matters discussed, recommendations made, and reasons therefor; and copies of all reports approved and issued.

REPORTS

A report will be prepared not later than June 30 of each year which shall contain, as a minimum, the dates and places of meetings, and a summary of the committee's activities and recommendations during the fiscal year. The report will be submitted to the official advised by the committee and a copy shall be provided to the Department Committee Management Officer.

DURATION

The Nutrition Coordinating Committee of DHEW will terminate two years from the date of its establishment unless extension beyond that date is requested and approved.

FORMAL DETERMINATION

I hereby determine that the formation of the Nutrition Coordinating Committee of DHEW is in the public interest in connection with the performance of duties imposed on the Department by law, and that such duties can best be performed through the advice and counsel of such a group.

CHARLES C. EDWARDS,
Assistant Secretary for Health.

April 4, 1973.

APPENDIX V

ANNUAL PROGRESS REPORT

Nutrition Coordinating Committee of DHEW—1974

INTRODUCTION

The Nutrition Coordinating Committee of DHEW was established in October 1972 "to provide a central focus for nutrition in the Department and to promote research, policy and program coordination." The following progress report describes the Nutrition Coordinating Committee's meetings, activities and recommendations for FY 1974 and is submitted to the Assistant Secretary for Health as required by the Nutrition Coordinating Committee Charter.

MEETINGS

The Nutrition Coordinating Committee met bi-monthly at DHEW North Building on the following dates: July 20, 1973; September 21, 1973; November 16, 1973; January 18, 1974; March 15, 1974; May 24, 1974.

LEADERSHIP OF COMMITTEE

Reorganization and personnel changes within the Department necessitated changes in committee chairmanship as well as representatives. Dr. Robert Laur, HSMHA, resigned as chairman in July 1973. Dr. Ogden Johnson, FDA, was appointed as his successor on July 20, 1973. He served until March 1, 1974, when he resigned from government service. Effective March 17, Dr. Myron Mehlman, OASH, was appointed chairman and continues to serve in that capacity. A current list of Nutrition Coordinating Committee members is attached (TAB A). Among significant developments was the designation of nutrition consultants from two Regional offices of DHEW by the Regional Health Administrators as Regional representatives to the Nutrition Coordinating Committee.

SUMMARY OF ACTIVITIES

While Nutrition Coordinating Committee members continued to perform each of the seven activities outlined in the approved Plan of Work (TAB B)[1], major emphasis was given to the following three activities during FY 1974.

(*1*) *Development of a proposed departmentwide position on nutrition*

A draft position was prepared and circulated to members of the Nutrition Coordinating Committee for their comments. After revision, it was then submitted to the Office of Program Operations for review and approval. Office of Program Operations believes extensive revisions are needed, and work on such revisions is proceeding. The

[1] Tab B not included.

document will be submitted for comment to all affected agencies before final submission to the Department authorities for approval.

(2) *Preparation of recommendations for the effective utilization of research findings in program activities as well as to identify research needs*

A report relative to biomedical research needs as they would apply to NIH interests is being developed and will need an additional four (4) months' work. The following actions are being taken to prepare an informational base for Nutrition Coordinating Committee recommendations:

(a) Compilation of information regarding manpower years and dollars that were spent on nutrition research in FY 1974 in DHEW agencies

(b) Identification of NIH manpower years and dollars spent in FY 1974 for research in the areas of diabetes, obesity, cardiovascular disease, nutritional deficiencies and heavy metals and other related areas

(c) Initiation of a similar inquiry related to specific health-related disease entities in all other DHEW agencies.

(3) *Review of proposed legislation and regulations where departmental policies may be at stake*

Since National Health Insurance was a major legislative thrust, staff from L were invited to meet with the Nutrition Coordinating Committee to discuss the administration's proposals. Inclusion of nutrition services as an integral part of NHI was considered worthy of serious examination. Thus a subcommittee was appointed to review the legislation in detail and make specific recommendations relating to nutrition in national health insurance plans.

(4) *Additional activities*

In addition to the above major activities related to the Program of Work, the following were carried on: an initial draft of an outline to use in developing guidelines for the establishment and conduct of agency nutrition programs was prepared; a list of agencies and departments with nutrition activities and with whom the Nutrition Coordinating Committee members have liaison was compiled; and assistance was provided to the Senate Select Committee on Nutrition and Human Needs relative to the National Nutrition Policy Conference held in June.

The Committee is serving increasingly as a focal point in the Department where problems and requests requiring an integrated and comprehensive Department-wide response can be handled, e.g., Title VII of the Older American Act was reviewed by the Administration on Aging representative and linkages with other department health and nutrition activities were explored with Nutrition Coordinating Committee members; current plans and progress for the 1975–76 USDA Surveys of Household and Individual Food Consumption were presented, and a composite Department response prepared and forwarded to the U.S. Department of Agriculture.

RECOMMENDATIONS

1. That the Nutrition Coordinating Committee be extended for an additional two years—to April 4, 1977.

Justification: During its initial two years, the Nutrition Coordinat-

ing Committee's major tasks related to organization and development of a Program of Work. Several important activities to implement the Program of Work are underway, e.g., final preparation of a DHEW Nutrition Policy, preparation of guidelines for establishment and conduct of agency programs, etc. These policies and procedures are urgently needed by DHEW agencies, thus provision should be made for their completion. Furthermore, it has taken time to develop recognition of the Nutrition Coordinating Committee as a focal point for nutrition. Requests for information and advice related to nutrition requiring a coordinated response from DHEW will in all likelihood increase.

2. Level of support in terms of dollars and manpower be examined in light of demands placed on this committee.

Justification: Since committee staff and members have full-time duties inherent in their positions within the Department, the time available for committee activities has been limited. Implementation of the Work Plan will require more staff time and resources.

3. That the Assistant Secretary for Health take measures to achieve among agency heads and Office of the Secretary staff greater recognition and support of the role of the Nutrition Coordinating Committee as a focal point for nutrition in the Department.

Justification: With frequent changes in agency personnel and pressing demands on key staff, there is a continuing need to inform them about the Nutrition Coordinating Committee and its role.

APPENDIX W
[DRAFT]

A STATEMENT OF NUTRITION POLICY FOR THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The role of nutrition in health and its relationship to the economic and social components of everyday life is increasingly being recognized as one of major importance to individual and national development. The Department of Health, Education and Welfare—whose basic mission is to help everyone achieve his or her optimum potential and to eradicate the demeaning conditions that undermine dignity and retard growth and development—must realize that the actions it takes in most of its areas of responsibility will impact on the nutritional well-being of the Nation's citizens. Nutrition should be included in the program areas of health, education, social services, and income maintenance and considered in the development of national policies and programs, proposals for legislative measures, and use of Federal resources.

In order to fulfill its mission in terms of nutrition, the Department must provide national direction for both public and private programs seeking to bring optimal nutrition to all citizens of our country. It should become an advocate for those nutritional efforts which are shown to be needed; be prepared to undertake program support, and intervene in crisis situations resulting in inadequate nutrition, or even malnutrition.

What Is Nutrition?

Nutrition is one environmental factor directly under the control of man which can be used effectively in the maintenance of health and in the prevention of disease and disability. However, the practical aspect of nutrition—the consumption of an optimal diet—directs attention to what nutrition really is.

Nutrition can be defined as a person's ability to develop physically and mentally at an optimal rate, to maintain body tissues, to carry out work performance to an optimum degree, and to reproduce normally, through the acquisition and consumption of food in needed amounts and of an optimal quality. To achieve adequate nutrition requires (1) availability of a safe and adequate food supply, (2) accessibility to food in terms of markets, income, etc., (3) understanding by the consumer as to the selection and preparation of food for good nutrition, and (4) absence or amelioration of a health problem—physical, mental or medical—which impairs the person's access to an adequate diet.

This definition serves as the basis for the following nutrition policy; namely that:

ALL CITIZENS SHALL HAVE ACCESS TO AN ADEQUATE AND SAFE SUPPLY OF FOOD AND ABILITY TO IDENTIFY, SELECT, AND PREPARE AN OPTIMAL DIET, IRRESPECTIVE OF SOCIAL OR ECONOMIC STATUS

Specific principles related to nutrition and food comprise the practical aspects of this nutrition policy—a policy that must serve to guide those in all HEW-administered programs that affect the nutritional health of the people served by those programs—and these are discussed below.

A. FOOD SUPPLY

The provision of an adequate and safe supply of food, accessible to all persons is essential to achieving adequate nutrition across this nation. The production and processing of food must be given the highest priority by the Government as well as by the private sector. Those agencies responsible for food must constantly review the supply of food, its safety, and its cost, to assure that food adequate in quality and quantity is available to meet nutritional needs.

The Department's role in assuring adequate food involves the provision of financial assistance or in some cases, food resources. Regardless of form, such programs must be operated in a manner so as to provide accessibility to adequate diets, as well as to the other basic essentials of life. The Department should assist in eliminating inequities which penalize many families in achieving good nutrition, such as recognizing the higher cost of living in some geographic areas and the variations often found in wages, costs of food and quality and quantity of food markets. Food programs if necessary should complement rather than replace family efforts and should be planned to benefit members of the family throughout their life cycle.

B. PROVISION AND DELIVERY OF NUTRITION SERVICES

The nutritional needs of people cannot be met in isolation from their other basic needs. Thus, the provision and delivery of nutrition services must be considered in relation to each of the major HEW programs that affect the total well-being of people (i.e., health, education, social services, and income maintenance).

Department policy should be to evaluate each program in order to determine the need for nutrition services and the adequacy of resources available to meet the need. Program planning in each program area should include attention to the identification of problems and needs in nutrition, the development of appropriation action steps to include nutrition service as an integral program component, provision of necessary resources and evaluation of program effectiveness and efficiency.

A comprehensive planning approach to nutrition services should be used by the Department because of the interdependency of the private and public sectors, the involvement of multiple Federal agencies in the provision and delivery of nutrition services, and the need to seek consumer input.

Since standards, codes, regulations, guidelines, etc., set forth or establish the base of program operations, it is essential that they not only reflect a concern for nutrition and demonstrate a consistency and coordinated approach among Department programs, but between these programs and those of other public and private agencies. Essentially this means that the Department must assume a role, and support necessary changes in prevailing regulations and, as required, seek new or amended legislation.

Funds should be made available to State and local communities to assist them in the development, expansion, and improvement of nutrition services needed for a healthy population, including the development of effective delivery mechanisms for such services. Provision should be made for the adequate administration of these programs and for personnel and other resources required to deliver such nutritional services.

While nutrition services should be designed to reach the total population, some groups of people will require special attention or priority in the provision and delivery of nutrition services. These include poor families who are usually at higher risk of malnutrition, nutritionally vulnerable groups including infants, children, and youth in the growing years; women in the child-bearing years; and the elderly.

Outreach efforts to identify those in need of nutrition assistance and provide necessary services should be encouraged. Staff of public and private agencies, as well as volunteers, should be trained and used for *outreach* efforts.

C. NUTRITION AND HEALTH

Nutrition is a critical factor in the promotion of health, in the prevention of disease, and in the rehabilitation from illness or injury. Thus, nutrition should be an integral component of all health and health-related programs and existing and emerging health delivery systems. Such systems should provide for evaluation of nutritional status as well as for the nutritional aspects of health promotion and maintenance, treatment and rehabilitation. Personnel and other resources required to deliver such nutritional services should receive adequate support.

D. EDUCATION IN NUTRITION

The public has a right and a need to be informed about nutrition and the relationship of nutrition to health and social and economic well-being.

The Department has a distinct role to play in the provision of nutrition education including (a) the provision of continuous educational programs on nutrition to reach all segments of the population, and (b) calling national attention to the problems of malnutrition and corrective action necessary. Any such programs must recognize the right of families to preserve the food patterns integral to the ethnic, and religious groups from which they draw their identity.

Education programs in nutrition should utilize all Department programs which provide a point of contact with the public and involve cooperation with other Federal agencies, State and local agencies as well as the private sector.

In addition to education in general nutrition, more specific education is needed as part of health care programs. Since nutrition is a critical factor in the promotion of health and prevention of disease and in re-

covery and rehabilitation from illness or injury, patients and their families need counseling and education in nutrition in order to assume responsibility for their own nutritional care, manage early symptoms of nutritional problems to prevent complications and implement prescribed diets.

Education of the public in nutrition and the provision of nutrition services to assure good nutrition can only be accomplished if adequate numbers of trained nutrition personnel are available.

E. MONITORING AND SURVEILLANCE

Systematic epidemiological studies to determine the nutritional status and good intake pattern of the population and an effective nutrition surveillance and monitoring system are essential to the establishment of appropriate action programs to deal with problems of nutrition. Those segments of the population whose diet is inadequate, excessive, or inappropriate for their health status, need to be identified in order to better target program funds and services to their needs. Trends in relation to food intake and changes in nutritional status need to be identified to alert the Department to potential problems. Such studies also serve as a basis for evaluation, not only of specific nutrition and food programs, but also of general health, welfare, and education programs designed to improve the health of the nation's citizens.

F. RESEARCH

The Federal Government should encourage, stimulate, initiate and support basic and applied research in the field of Nutrition. There is a need to carry out Nutrition Research related to Health, chronic and metabolic diseases. Also, Nutrition Research on human requirements and the factors affecting requirements is needed. The application of nutrition, both in health education programs and as part of clinical medicine, should be encouraged and where necessary supported, as part of Health Service Program.

A policy of research support for nutrition, both as part of studies on specific diseases, i.e., diabetes, cardiovascular disease, obesity, and as an area of health deserving attention as a fundamental component of optional health, is required of the Department.

Research findings, particularly those related to health benefits associated to changes in the diet, must be incorporated into health programs in order to benefit the public as quickly as practically possible. Close cooperation between Nutrition Research groups and those responsible for providing health care should be encouraged.

It is urged that the Department should provide a percentage of total health resources for nutrition research and activities.

G. EVALUATION

Evaluation must be a part of every program, built into the basic program components, and designed to report the progress toward the program goal. The primary criteria for evaluating any program designed to meet the nutritional needs of family units must be made in human terms—the preservation of human dignity, the maintenance of adequacy, the realization of the goal of a sound and healthy citizenry.

H. MANPOWER

The Federal Government should provide leadership in the recruitment and training of all levels of nutrition personnel required to staff adequate nutrition services.

Basic support should be given to public and private institutions involved in nutrition training programs, or with the capability of developing such training.

Federal support of student assistance for the health professions should include attention to the need for nutrition manpower.

Programs targeted on improving the distribution of manpower resources should consider nutrition manpower and needs of areas of critical shortage. In other words, national emphasis should be on increasing the supply of nutrition manpower as well as improving their distribution and utilization.

I. COORDINATION

Nutrition should be considered as joint responsibility of Government, private groups and organizations, the family and the individual.

Cooperation between groups within the Department as well as with other agencies' programs is needed to assure cooperation, coordination, and a flow of information among those involved in nutrition related activities. Of special concern is the cooperation between Federal, State, and local government groups. The partnership of these groups in relation to nutrition is essential to success. Direct exchanges of ideas based on surveillance and evaluation information obtained as part of programs as well as in specific programs should be arranged on a continuing basis.

J. LEGISLATION

The policy of the Department should be to evaluate all health, education, social services and income maintenance legislation and determine the need for a nutrition component, where nutrition is a necessary program factor. Suitable language should be provided to assure that services and personnel support will be an integral part of the law.

Appropriate attention should also be given to nutrition in the development of program legislation as well as regulations. Frequently, nutrition is either omitted or included as an elective component in legislation and regulations for the Department's programs.

K. RESOURCES

The Department should provide a percentage of total resources to programs for nutrition services, research and education of manpower.

APPENDIX X

[Revised November 12, 1974]

ADMINISTRATIVE CONFIDENTIAL DRAFT

I. Preamble

As the Nation moves ever closer to assuring universal access to health care, and the need for more effective preventive care becomes increasingly evident, the importance of assuring good nutrition for everyone moves ever closer to the center of attention. This logic has been present at the subconscious level for a long period of time; it must now be raised to the conscious level and appropriate action taken.

We have discovered that our high national standard of living has not proven adequate to the task of protecting large sub-sets of our population from insufficient and nutritionally inadequate diets. In addition, it is apparent that the affluence of America has not protected her people from numerous degenerative diseases: (cardiovascular) heart disease, cancer, obesity. While the relationship between starvation or malnutrition and food is abundantly clear, the suggestion that good nutrition can prevent disease states needs more clarification and investigation.

Nutrition is an expression of the health state resulting from food practices, genetic constitution, and other environmental conditions. The fact that food practices are influenced or modified by other factors, such as socio-economic and cultural conditions, compels consideration of such factors in any policy which would improve the nutritional status of the individual and the Nation, but it does not move the focus of attention from nutrition as a health concern first and foremost.

Nutrition affects health from time of conception to death. Faulty nutrition leads to increased infant mortality and maternal morbidity; it stunts development, both physically and mentally; and it predisposes to or aggravates a spectrum of disease conditions, diminishing the quality of live, personal productivity, and longevity.

While many of the mechanisms by which faulty nutrition has these effects have yet to be elucidated completely, and some of the effects themselves remain to be discovered, sufficient sound information exists with respect to food practices, nutrition, and general health to allow much greater control of health through dietary practices than is now being done. Maximum benefit from existing knowledge will require greater organization of all relevant resources than has been achieved to date. Without such organization and marshalling of resources, much human potential will go unrealized; and, more noticeably, significant relief to the health care system and cost containment will be lost.

The basic goal of the nutrition policy of the Department of Health, Education, and Welfare is to assure the freedom for all people from

poor development or ill health related to nutrition. Whenever activities of the Department involve nutrition, the policies of these programs and activities shall reflect the Departmental commitment to this basic goal.

In assuring food and nutrition practices in relation to optimal human health, the Department recognizes the following supporting goals:

(1) Promotion of an adequate supply of wholesome food and assurance of its quality,

(2) Informed and motivated consumer and professional sectors,

(3) Assured access to the food supply by all, in health or in disease

(4) New information through basic and applied research,

(5) Evaluation and surveillance of food and nutritional status,

(6) International responsibilities.

II. Background

A. The relationship of nutrition to health

The future of every succeeding generation, now that the pestilences have been largely controlled, is determined more by the combination of genetics and nutrition than by any other combination of factors. For the present, control of human genetics is beyond the grasp of man, but control of nutrition is not. What is nutrition and how does it relate to health and disease?

The science of nutrition can be defined as the interaction of nutrients derived from food with the physiological processes of living systems. Protein, carbohydrates and fat, the three energy nutrients in the diet are accompanied by the accessory factors: vitamins, minerals, water and fiber. All are important for the proper functioning of the organism and none can be replaced completely by any other. Good nutrition must exist for a person to develop physically and mentally at an optimum rate, to carry out work performance to an optimum degree, and to reproduce normally. To assure good nutrition the following conditions should exist:

(1) Availability of a wholesome food supply.

(2) Knowledge and understanding by the consumer as to the selection, preparation, and consumption of an appropriate diet.

(3) Accessibility to food in terms of its distribution, personal income, individual incentives.

(4) Absence of a health problem which could either impair the person's access to an adequate diet or could interfere with the proper digestion, absorption and/or utilization of nutrients.

(5) A genetic makeup which is predisposed to good health.

In the first three instances men and governments can attempt to control those environmental factors which would lead to optimum health through balanced nutrition; in the last two instances they may or may not be able to bring about good health through nutrition because of an accident of nature.

Food factors

Given that good health necessitates good nutrition, the question must then be asked, what constitutes an appropriate diet for an

individual and a wholesome food supply for a nation? The appropriateness and wholesomeness of food can be categorized as follows:

(1) Quantity
   a. too much
   b. too little
(2) Quality
   a. purity
   b. nutrient balance, including variety
   c. bioavailability

For example, an ideal diet would consist of the number of calories required to meet an individual's energy needs, the amount of protein necessary to build and repair tissues, and those accessory factors needed for digestion, absorption and metabolism. Too little of these nutrients could result in undernutrition or starvation; too much could result in overnutrition or a variety of health problems. Additionally, the nutrients ingested must be varied and balanced, must be as free from harmful agents as possible, and must be bioavailable to the host.

Host factors

Assuming that (1) There exists adequate wholesome food in the United States, (2) that the public can learn what to select and prepare to suit their needs, and (3) that they will have access to an appropriate diet, the question must then be asked, "How does food and nutrition relate to the onset of disease, the amelioration of disease, and the prevention of disease? The hosts who may contract these nutrition related diseases can be delineated as follows:

(1) Normal
(2) Abnormal
   a. congenital
      (*1*) genetic
      (*2*) teratogenic
   b. acquired

If the host fits into category "normal", it may be assumed that good nutrition would play a role in the prevention of some diseases (e.g., sufficient codine in the diet prevents goiter). If he fits into category "genetic", he may be more or less susceptible to a disease (e.g., the genetic predisposition to diabetes). Finally, if he is in category "acquired", he may be in a position to benefit from nutritional therapy in the amelioration of a disease (e.g., the traumatic loss of a large part of the intestine).

In summary, nutrition in health and disease incorporates *host factors* and *food factors*. Optimum health requires wholesome food, knowledge to select and prepare it, access to it, and a host who is free from disease, whether acquired or congenital.

B. FACTS, ASSUMPTIONS, CONCLUSIONS, AND POLICY STATEMENT

The development of a policy on food, nutrition, and human health with such extensive health, economic and political implications calls for assembly of a broad spectrum of facts, assumptions and conclusions each clearly so identified and the total so arrayed as to depict accurately the current situation.

Facts, assumptions and conclusions should be recognized for what

they are; they represent the state of knowledge at the moment and nothing more. Facts frequently must be used as starting points for discussion, recognizing that they may be rejected together with all assumptions based upon them. Conclusions are determinations based upon limited facts based on presumably relevant experience but which may change with tomorrow's information

1. Promotion of adequate supply of wholesome food and assurance of its quality.

Facts

(a) In its primary form wholesome food exists in sufficient supply to meet the needs of the entire population.

(b) In the processing and storage of food from its primary to its secondary form as food products, there is opportunity for loss of nutrients, contamination, and distortion of total quality.

(c) There are X food products on the market today and X number of new products being marketed yearly.

Assumptions

(a) Sufficient knowledge exists which demonstrates that the loss of nutrients can be minimized by the proper handling of foods.

(b) There will always be some unavoidable contamination of foods during processing but good manufacturing and sanitary practices can reduce this risk to a minimum.

(c) There is a possibility that the nutritional quality of fabricated food products will not be equal to that of the food it is meant to replace.

Conclusion

Therefore, it is necessary to continue to promote an adequate supply and the equitable distribution of wholesome food. Specific guidelines must be developed and enforced to assure the quality of wholesome food along the entire food production chain.

Policy statement

The DHEW recognizes that its statutory authorities in respect to supply are limited to measures to assure only some aspects of quality through setting of some standards, monitoring of products, and "rejecting" deficient products. The Department of Health, Education, and Welfare acknowledges the fact that authorities in respect to many aspects of the food supply are shared with the United States Department of Agriculture, the Environmental Protection Agency, and other Federal agencies and State and local governments. Since U.S.D.A. has the Federal responsibility for the supply of food, then DHEW adopts the role of advocate of the "demand" side of the equation, demand as to sufficiency, variety, quality, and reasonableness of costs.

Identification of guiding principles and standards of food quality will be hollow accomplishments if they are not applied to assure the highest attainable quality of the foods that appear in the marketplace. To accomplish this, there must be a system of regulation that clearly enunciates principles and practices of the highest attainable and practicable order and establishes operating practices which ensure compliance. Accordingly, this Department commits itself to those actions which encourage, foster, and support, within its available resources: (a) increased awareness that nutrition and food supply are health

matters of prime importance, in which consumer interests should be uppermost considerations, (b) examination of the philosophy and effectiveness of various approaches to the assurance of quality, (c) improvement of food manufacturing practices through development of appropriate guidelines, and (d) monitoring of manufacturing practices and dissemination of findings.

2. Informed and motivated consumer and professional sectors.

Facts

(a) DHEW's ten state nutrition survey states: "As the homemaker's educational level increased, the evidence of nutritional inadequacies of the children decreased" (4)

The FDA's Food & Nutrition Consumer Survey, June 1974, shows that the educational level of the consumer is directly related to good food buying practices (reading ingredient labels, concern for well-rounded meals, etc.) (5)

(b) There has not been structured, effective, continuous nutrition education per se in the public schools from Kindergarten through 12th grade. (6)

(c) $141 billion is spent annually by Americans for food. While the food industry spends $4 billion annually on food advertising, only a fraction* of this amount is spent by the government on nutrition education or by public service organizations such as the Nutrition Foundation ($100,000)* (7) to promote sound, unbiased nutritional information.

(d) A study in 1969 by the Advisory Council on Food and Nutrition of the AMA revealed that only 7 out of 60 medical schools had a formal nutrition component in their curricula. (8) A conference on Nutrition Education in Medical Schools held in Williamsburg, Virginia in 1972 established a program for teaching nutrition in medical schools. Currently, approximately 28 medical schools are preparing to adopt this program. (9) Similar conferences were held by other health professions, emphasizing these needs. (10)

Assumptions

(a) The poor nutritional status of many segments of the population, not necessarily relating to socio-economic status, suggests that inadequate nutrition education is at least partially to blame.

(b) If children throughout their formal education are taught the fundamentals of nutrition and sound eating habits, they will more likely be motivated to maintain good nutrition practices.

(c) After formal education ends, ongoing, accurate nutritional information from the appropriate sources will counteract misinformation and will thus enable the individual to select, prepare and consume wholesome foods.

(d) If health is to be the ultimate goal of a nutritious diet, then surely the health professionals must have thorough training in the fundamentals of this science.

Conclusions

Sound principles of nutrition must be incorporated into public school curricula, must be relayed in the most effective manner to the consuming public, and must be taught to the health professionals.

Policy statement

An effectively motivated population must be well informed. Soundly-based information must be conveyed to those sectors of the population who are best qualified to inform and educate, using all of the appropriate, highly sophisticated educational techniques and media now available, and ultimately it must reach the consumer.

Accordingly, the Department of Health, Education, and Welfare commits its authorities and extensive resources to encourage, foster, and support both public and private programs to:

(a) Enunciate principles of sound nutrition and dietary practices.

(b) Inform and educate all receptive populations in respect to these principles and practices.

(c) Make available to the general public, (in terms that are intelligible and useful), all necessary, appropriate, and obtainable information on the composition of marketed foods in respect to both unprocessed and processed.

(d) Seek strong measures to control those food advertising practices that tend to misinform or mislead the consumer and eliminate exploitation of the young and uninformed viewers of television by food advertising which ignores or neglects principles of sound nutrition and dietary practices.

3. Assured access to the food supply by all, in health or in disease.

Facts

(a) The National Nutrition Policy Study Hearings of the Senate Select Committee on Nutrition and Human Needs, held in June 1974, devoted a panel to the description of the high nutritional risks of "Special Groups" in the U.S. In their Report and Recommendation VIII, ample evidence was presented showing the need for improved and assured access to nutritious foods by those susceptible groups. (11)

Assumptions

(a) Certain segments of our population are at a higher risk of malnutrition, such as infants, children, women in child bearing years, the elderly, the poor, the institutionalized, and certain ethnic groups.

(b) Through the Government's social economic mechanisms the more advantaged and independent U.S. citizens provide for the needs of the more dependent.

(c) The availability of adequate food income will provide the opportunity to acquire necessary foods.

Conclusions

Those subsets of our population most susceptible to risks of malnutrition and concomitant health effects must be protected by the appropriate public programs and services.

Policy statement

Equity does not exist when the most fundamental of human needs, an adequate food intake, is not assured to everyone. To a degree, access to food can be assured by incomes above certain levels. It is in part to assure access to a sufficient supply of food that the Administration has supported a concept of income maintenance. However, as inflation continues to erode the purchasing power of the currency, there is a continuing need to readjust the definition of a subsistence

level, and regardless of inflation, there are circumstances in which the individual's income cannot assure adequate access to food of the appropriate kinds or amounts. Patients in institutions frequently receive far less than optimal dietary care and can do little or nothing to improve their conditions. In fact, children and preganant women and the aged are vulnerable segments of the population who should be assured access to high quality food because of their specialized needs.

The Nation should be satisfied with nothing less than its best effort to identify failures of access and to create acceptable means of correcting the deficiencies.

Accordingly, the Department of Health, Education, and Welfare commits its resources to assuring, as much as possible, adequate access to the Nation's food supply by encouraging, fostering and supporting:

(a) The most sound and equitable means of income maintenance,

(b) Measures that effectively monitor performance of all food programs, including institutional care, over which the Department has authority,

(c) Strengthening of regulations under these authorities as deficiencies and opportunities for improvement are identified,

(d) Working closely, in an advisory capacity, with Federal, state and local authorities to improve food and dietary services,

(e) Working closely with community leaders to raise the level of awareness in the community at large of the individual's obligations to society in respect to the food needs of those individuals who are less fortunate than themselves.

4. New information through basic and applied research.

Facts

(a) The deficiency diseases (scurvy, rickets, beriberi, pellagra) were controlled when the specific limiting factors in the diet (vitamin C, vitamin D, thiamin, niacin, respectively) were identified and pro vided through necessary means. (12)

(b) There are many diseases in the United States today (ex: obesity, diabetes, coronary heart disease, dental caries, anemia) (13) that have not yet been brought under control. Some scientific experts believe these diseases could be controlled by nutritional factors.

(c) There is no perfect synthetic diet for animals or man which will both support growth and reproduction. (13½)

Assumptions

(a) There is abundant existing knowledge resulting from basic research identifying the nutritional factor(s) in disease.

(b) This knowledge implies that there are many specific areas where the relationship is suspected and needs to be clearly defined.

(c) In spite of extensive knowledge in the areas of the nutritive composition of foods, we cannot yet prepare an adequate diet which will support reproduction.

Conclusion

Therefore, because research findings identified some of the vitamins as the link to deficiency diseases, more basic research can reveal heretofore unknown relationships in this area.

Applied research must be undertaken to elucidate the causative factors in the suspected nutrition-related diseases.

There must be a focus of research effort in the area of new food products and their nutritive composition which will lead to the fulfillment of all of man's nutritional requirements.

Policy statement

The search for better food practices must begin with the identification of salient significant questions. At one end of the spectrum, it is necessary to ask repeatedly, "What is nutrition?" "What are the relationships between food or dietary practices and human health?" At the other end of the spectrum, it is necessary to ask repeatedly, "What differences in health result from the programs that attempt to or actually do modify food and dietary practices?" Between the two ends of the spectrum there are many kinds of worthy research and information-gathering possibilities; all are needed in appropriate degrees to achieve optimal results.

We must have sound information upon which to base decisions, ranging from recommendations for modification of food crops through safety in use of pesticides and other agricultural chemicals; through harvesting, storage, transportation, processing and marketing; to composition of diets in relation to individual needs, preparation of food for consumption, and storage of food in homes and institutions. And, we must have information on the most effective educational methods for improving the food practices of various segments of the community.

We must apply the Nation's best resources of critical analysis and judgment to the identification of the most pertinent and promising questions and answers; we must share this responsibility with other departments and agencies within the Federal Government, and we must call upon resources of other levels of government, of academia, of industry, and of the consuming public. And, finally, we must create an effective mechanism for these purposes.

Accordingly, the Department of Health, Education, and Welfare commits itself to the creation and maintenance of an office of nutrition charged with lead responsibility for:

(a) Advising the Assistant Secretary on the development of programs designed to acquire through research the information needed to assure successful fulfillment of the Department's responsibilities in respect to food, nutrition, and human health.

(b) Advising the Assistant Secretary on the development of broad policies to make the most effective application of information being generated, both within and beyond the Department, for the improvement of the food and nutrition programs to the level of the consumer.

(c) Assuring liaison with other Governmental agencies, with academia, with industry, and with consumer groups, such that the Department's food and nutrition programs will be attuned to the greatest needs and opportunities for the improvement of health and will work in a complementary manner with those beyond the Department.

5. Evaluation and Surveillance of Food and Nutritional Status.

Facts

(a) USDA, DHEW and other public and private agencies monitor the disappearance/consumption levels of food in the United States, (14) the pesticide levels in food, (15) and the nutritional and health status of the population, in relation to socio-economic factors. (16)

(b) Preliminary and final findings indicate that there are serious continuous changes in the diets of all Americans.

(1) X number of new food products are introduced to the consumer yearly. (17)

(2) There are 34,000,000 American women working outside the home of which 38% have school-age children. (18)

(3) Inflation has caused notable shifts in consumption of specific foods. (19)

(4) X number of overweight Americans try weight loss diets each year. (20)

(5) Cardiovascular risk patients are being advised by the American Heart Association to shift to low cholesterol, low saturated fat diets. (21)

Assumptions

(a) To maintain good health we must first know the condition of our food supply and the nutritional status of the population.

(b) Continual changes in eating patterns are caused by:

(1) The replacement of traditional food with modified and/or convenience foods.

(2) Changing life styles.

(3) The shrinking food dollar.

(4) Legitimate and faddish health concerns.

Conclusion

Therefore, permanent ongoing measures are necessary to monitor and evaluate the continual changes in our food supply and eating habits and their ramifications for health.

Policy statement

Basic to any food and nutrition policy is *the need to know*, the need is an accurate and up-to-date system of surveillance and evaluation. The assessment process must necessarily address all activities now supported by the Department, ranging from identification and enunciation of the most sound principles of nutrition, and dietary and food practices; of food quality and safety; and of education and motivation of various population and industry sectors; to programs that are designed to assure access to the food supply.

Into this evaluative process there must be built a means by which the performance of Government, together with industry, the professions, and the consuming public can and will be subjected to shrewd and realistic analysis which must lead to adjustments of future courses that will be assuredly "on target".

6. International responsibilities:

Facts

(a) Plentiful food exists in the United States, evidenced by the amount of grain produced (X), vs the amount consumed by Americans

(X) (22). However, it currently is estimated that 500 million people in the world are starving or are malnourished. (23)

(b) The Marshall Plan was the beginning of America's formal commitment to assist other countries with their needs. (24)

Assumptions

(a) Because of our plentiful supply of food in excess of national needs, the United States is in a position to assist less developed countries to meet their agricultural and nutritional requirements.

(b) Many Americans feel that affluent countries have an obligation to share their resources with other nations in crisis situations with respect to food.

Conclusions

Therefore, the United States should make available its resources and expertise to enable underdeveloped countries to develop a strong base for independence in their food needs.

Policy statement

In considering any domestic policy we are obligated at least to consider the probable impact of our domestic actions on other nations, especially those in less fortunate circumstances. This does not imply a necessary obligation on the part of the United States to submerge its own welfare to that of other nations, but it does implicitly obligate the United States to choose the better of alternatives where the consequences are not substantial to the U.S. interests. Further, while considering alternative courses of action on domestic issues, especially in respect to the food supply, thought should be given to possibilities which may be advantageous not only to other nations but also beneficial to the health and welfare of the U.S. population.

For example, it is accepted fact that animal sources are much more costly sources of protein than are the grains. To put the matter more directly, a given weight of certain grains meets the protein needs of more people than an equivalent weight of animal protein. Per se, this observation does not necessarily dictate a major shift in dietary practices by Americans to conserve grain for the less sufficient nations, although this might be a compassionable act. But, if it were demonstrated that such a shift would be actually beneficial to American health, then evaluation of such a move would be worthy of serious consideration.

To this end, the U.S. Department of Health, Education, and Welfare is deeply interested in and committed to enunciating the most appropriate and equitable means for providing food aid to the world's hungry.

APPENDIX Y

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE,
February 7, 1975.

Memorandum.
To: The Secretary.
From: Acting Assistant Secretary for Health.
Subject: Statement on the health aspects of nutrition.

The attached statement on the health aspects of nutrition is proposed as an informative expression of this Department's commitment to improving the nutritional status of all Americans and a step towards the development of a national policy on nutrition.

It is intended to provide a pattern of priorities to guide DHEW agencies in the planning and conduct of their nutrition-related programs. The effectiveness and productivity of agency nutrition programs can be improved by:

1. Incorporating and giving explicit recognition to nutrition objectives in the plans of all health-related programs
2. Assuring through the planning and budget process that full consideration is given to funding the nutrition components of all health-related programs, including the need for and feasibility of redirecting available resources.
3. Establishing a method through which other Federal Departments and members of the non-Federal sector, including the general public, can communicate easily with this Department, and obtain information, guidance, and expert assistance on the many interrelated aspects of nutrition.
4. Maintaining close and continuing relationships with appropriate Federal Departments, such as Agriculture and State, to assure consistency in Federal policies on food and nutrition and full recognition of the health aspects of nutrition in such policies.

To achieve these objectives, the Assistant Secretary for Health should be formally charged with the responsibility for providing policy guidance and coordination to agencies of the Department on the health aspects of nutrition and for formulating, in collaboration with them, a Department policy on nutrition. The policy would be reviewed annually to reflect all elements of Department programs and needs and would be included in the Forward Plan for Health. To maintain consistency in approach, the Assistant Secretary for Health should also be given responsibility for assuring effective communication and relationships with members of other government agencies and the non-Federal sector on matters of nutrition.

It is my hope that this statement will generate dialogue on this subject within DHEW and with other Federal agencies and provide a basis for consensus on how the objectives of a DHEW nutrition policy can best be achieved.

THEODORE COOPER, M.D.

Attachment

HEALTH ASPECTS OF NUTRITION

Purpose and Scope

Adequate food and sound nutrition are essential to good health. Not only are they crucial for human survival and key factors in the prevention and recovery from illness, but they are prerequisites for improving the quality of life of Americans and other peoples of the world.

Enunciation of a nutrition policy at this time reflects the growing concern of the Department, the scientific community, and the public about the role of nutrition in human health and a greater recognition of the opportunities for enhancing the Nation's health through improved nutrition.

The health dimensions of nutrition range from problems of malnutrition, obesity, and the quality and safety of the food supply, to the links between the foods we eat and the development of disease. These and related problems can be addressed productively if the resources and energies of DHEW are focused more deliberately on achieving the objectives of a common nutrition policy and if communications among DHEW agencies and relationships with other Federal Departments are strengthened.

The policy statement describes the Department's major program objectives with respect to the health aspects of nutrition. The statement also serves as a framework around which DHEW agencies can shape program initiatives, increase or redirect resources, and establish more collaborative relationships among themselves with other Departments and with the non-Federal sectors.

Objectives

The goal of the nutrition policy is to improve the quality of life by enabling all Americans to reap the health benefits of sound nutrition.

1. A high priority is to ensure that every American has access to an adequate supply of wholesome food which provides all nutrients known to be essential to maintain or improve health and vitality.

To the extent that the supplemental income programs of DHEW affect access to nutritious food, the Assistant Secretary for Health shall work with the Commissioners of the Social Security Administration and the Social and Rehabilitation Service to develop Departmental nutrition policy. Special attention shall be directed at the relationship between sound nutrition, the availability and cost of food, and policies of the Department of Agriculture.

2. Nutrition concerns shall permeate all health-related activities. Nutrition shall become a mandatory component of these programs of public education, primary care and comprehensive health care funded or supported by the Department:

In the planning, organization, and implementation of health care systems.

As a vital part of direct health services available throughout the United States.

In health planning and the provision of services to those population subsets at special risk of malnutrition and who have concomitant, special nutrition requirements: infants, young children, pregnant and lactating women, and the aged.

In the management of diseases or other health problems which are initiated or aggravated by inappropriate or poor diets—e.g., dental caries, diabetes mellitus, hypertension, obesity, iron deficiency anemia, and certain forms of arteriosclerosis and cardiovascular disease.

In the development and use of special diets for the treatment of diseases or other health problems—e.g., peptic ulcer, gout, heart failure, food allergy, phenylketonuria and other inborn errors of metabolism.

In the training of nutrition and health-related personnel.

3. Monitoring activities shall be needed to establish:

The Nutritional Status of the Nation. This shall be accomplished through general surveillance activities at the national level, and through local surveys of high-risk populations. Such monitoring shall include the identification and full assessment of the extent and location of nutritional problems according to region, income, food availability, ethnicity, and sex. This shall also include monitoring trends of the eating habits of the American people, as well as determining the long-range effects of chronic ingestion of various nutrients. Studies shall explore the immediate and long-term linkages between dietary habit, nutrition, and health.

The results of surveillance and monitoring shall be linked programmatically to activities of the Department to promote and enhance the health and well-being of the population.

Safe and High-Quality Food. To ensure the consumption of safe and wholesome food and nutrients, it is required that there be determined the nutrient composition of foods and the presence of potentially hazardous substances—additives, artificial coloring and fortifiers—as well as inadvertent contaminants, infectious agents, toxins, or other dangerous materials as might naturally occur in foods. This also recognizes potential problems associated with the entry into the marketplace of foods of uncertain composition as well as variations in the quality of food that can result from changing agricultural practices, preparation, processing, packaging, transportation, and storage. Such measures require monitoring of food safety, basic and applied toxicological research and technical and financial assistance of State, local, and Federal governments. Finally, in order that the public may make safe and intelligent selection of foods, full and accurate labeling must be assured.

4. New knowledge shall be developed in the areas of:

Biomedical research in order to increase our knowledge of human nutritional requirements and improve our understanding of the individual and complementary actions of the more than 40 vitamins, minerals, amino acids, and other nutrients known to be essential in human growth and development.

Special attention shall be given to understanding the role of balanced nutrition in the prevention and treatment of disease, the improvement of maternal and child health, and its affect on the aging process. Research shall also be directed towards helping to resolve the controversy concerning true human protein needs and the feasibility of relying more heavily on grain as a source of protein. This not only provides an opportunity for possible improvement in health, but also offers an opportunity for more equitable and improved grain utilization in the face of increasing world demand for food.

Behavioral research shall be directed at the problem of overnutrition, including the study of the social and psychological factors contributing to overeating, obesity, and the wasting of food. It shall also focus on nutritional deficiencies and behavioral aspects of problems, such as alcoholism.

Nutrition assessment. Critical to these efforts is the development of more effective and inexpensive methods of appraising the nutritional status of population groups. Additional research is needed to define human nutritional requirements more precisely. This information is essential for sound nutrition planning, food labeling, and the early detection of subclinical deficiency states. This new knowledge shall be brought into the realm of applied efforts in order to take on the task of ameliorating and preventing disease through improved diet.

Health service delivery in order to better understand and improve methods of organizing, financing, and delivering nutritional services in our multidisciplinary health system and diversified society. Improved nutrition programs run by health departments, schools, churches, and other community organizations shall be a part of the national commitment to comprehensive health care.

Methods of health education aimed at improving the widespread transfer and prompt application of old and new knowledge about nutrition. This knowledge must be judged valid and accepted as beneficial by the scientific nutrition community and pertinent Federal agencies. Further, nutrition information shall be presented to consumers in ways that are useful in selecting foods appropriate to individual nutritional needs. Finally, efforts shall be directed towards improved nutrition education for children in school, along with better nutrition counseling of mothers and pregnant and lactating women, as well as better provision of information to the medical community and to the population at large.

APPENDIX Z

DEPARTMENT OF HEALTH, AND WELFARE,
OFFICE OF THE SECRETARY,
Washington, D.C., September 24, 1975.

To: Agency Heads.
From: Assistant Secretary for Health.
Subject: DHEW Nutrition Coordinating Committee.

This is to officially acknowledge the expiration of the two-year charter authorizing the establishment and activities of the DHEW Nutrition Coordinating Committee (expiration effective April 4, 1975).

In light of recent Department policy on health, food, and nutrition, and in view of the important role that nutriton plays in preventing illness and maintaining health as detailed in our Five Year Forward Plan for Health, I am evaluating various options in an effort to select the best organizational mechanism for addressing nutrition (and health) issues that relate to the Department. Meanwhile, issues relating to health and nutrition will be coordinated by my office, with contact and correspondence being made with appropriate agencies and divisions within the Department.

THEODORE COOPER, M.D.

(257)